AGRICULTURAL OUTLOOK

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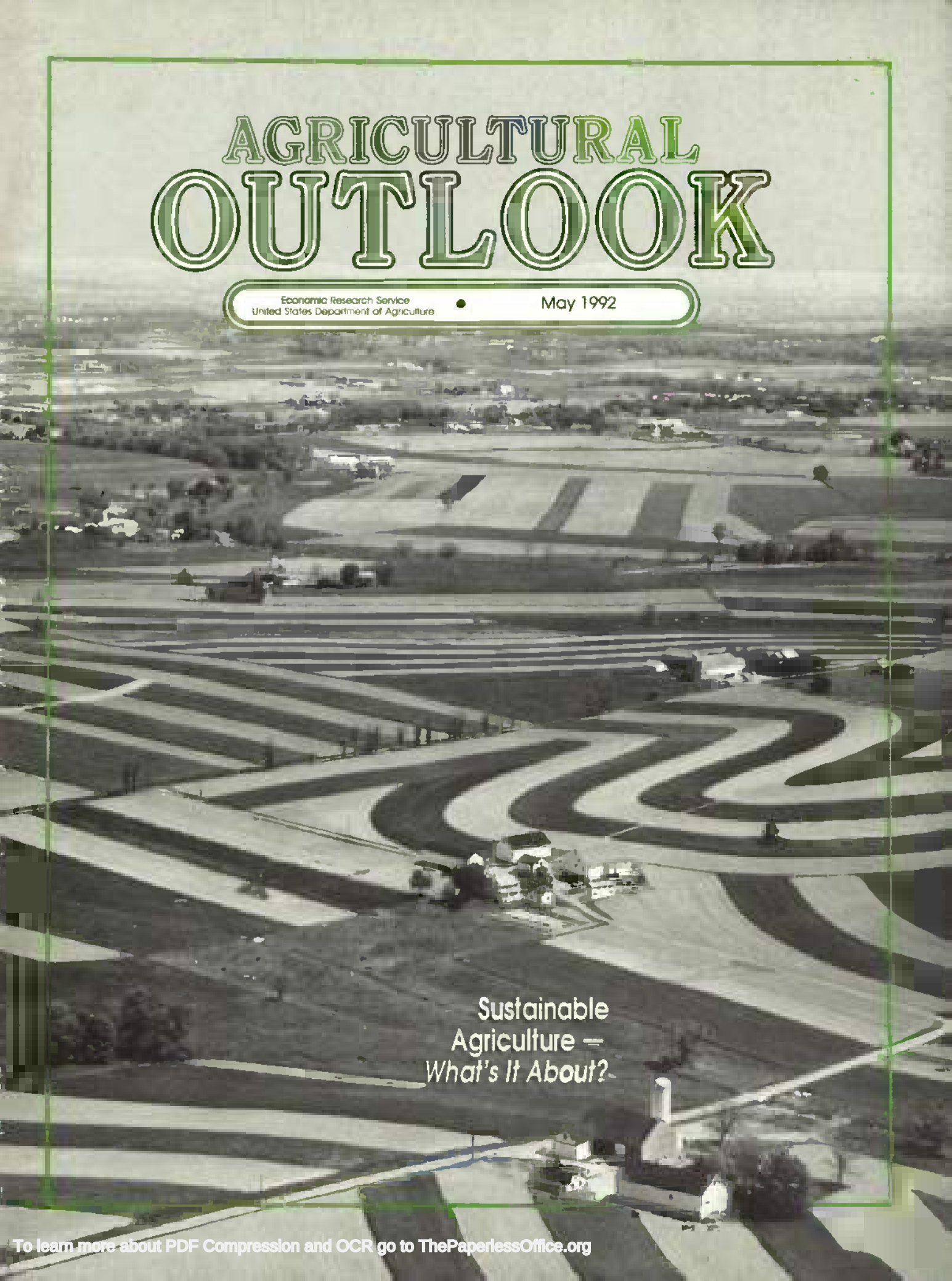

Sustainable Agriculture — *What's It About?*

May 1992/AO-185

AGRICULTURAL OUTLOOK

Departments

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Contoured fields west of Lancaster, Pennsylvania

Special Articles

Statistical Indicators

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News of Crop Acreage Prospects, Pesticides, Sustainable Agriculture, and Organic Produce

Farmers across the U.S. intend to plant more spring wheat, sorghum, corn, and rice in 1992, according to the *Prospective Plantings* report released March 31. Plantings of sweetpotatoes and tobacco are also up from last year, but the report indicates that plantings of soybeans, cotton, barley, and dry beans will decline. If the indicated acreage is realized, corn area would be the largest since 1985, and soybean area the smallest since 1976.

Based on the report, total wheat area is expected about even with last year's level, but with substantial differences among wheat classes. Winter wheat seedings are estimated at 50.3 million acres—about 1.5 percent below 1991. But spring wheat producers—watching wheat prices climb higher through late winter—indicated intentions to increase plantings. Excluding durum, spring wheat area could be up 10 percent, exceeding 17.2 million acres.

Agricultural productivity in the U.S. and other areas of the world has been unprecedented in the last four decades. Over a 20-year period from the mid-1960's to 1985, for example, global cereal production jumped 81 percent, while population grew by 45 percent.

However, many observers assert that the improved productivity has not been without costs, precipitating soil erosion and compaction, water quality problems, and controversies about the relation of food safety to heavy pesticide use. The very success of the "Green Revolution" has set the stage for a more "sustainable" agriculture that minimizes the impact of agriculture on the environment.

At the root of the sustainability movement is a concern about the ability to manage the natural resource base so that food and fiber needs of future generations can be met at an acceptable environmental cost. But no general agreement

exists on how to successfully incorporate the protection of natural resources into the productivity equation.

Together with the research community and government, farmers are applying new practices and approaches—in crop rotation, alternative tillage, pest control, and soil maintenance—to lessen the impact of agriculture on the environment, while maintaining growers' incomes.

Several current issues in pesticide use illustrate the challenge of reconciling the needs of farmers with growing health and environmental concerns. Stricter standards in the past few years are raising the cost of reregistering numerous pesticides for "minor use" or small-acreage crops—and prompting manufacturers to cease production when returns fail to cover the costs. For the nation's fruit and vegetable growers, the loss of pesticides relied on for these "minor use" crops is causing particular problems.

Replacements for the pesticides are sometimes more costly, and in some cases their loss disrupts pest management programs designed ultimately to reduce total pesticide use.

Some pesticides produced in the U.S.—but not registered here—may be exported for use by foreign food producers. The potential "circle of poison" refers to the import of fruits and vegetables that contain above-tolerance residues of pesticides produced in the U.S. but unregistered for use in this country. A basic issue is whether the government or the private sector should bear the costs of testing for pesticide residues in imported foods.

Transnational responsibility for food safety in trade is illustrated in the fourth installment of the series on U.S.-Mexico relations. With strong trade ties and a 2,000-mile common border, the U.S. and Mexico inevitably confront similar food safety and environmental issues.

Various pathogens, crop pests, and livestock diseases indigenous to the U.S. or Mexico make trade regulations necessary to protect agriculture and food safety in both countries. Cooperation to reduce plant, animal, and food safety hazards remains the key to overcoming problems and keeping trade moving.

Do consumers vote for safe and healthful food with their dollars at retail markets? The organic produce industry says yes, despite sluggish sales at retail supermarkets. Based on a recent survey, sales through natural food stores increased 39 percent in 1990 over the previous year, following a 68-percent increase between 1988 and 1989. While striving to expand into supermarkets, the industry may get some help from USDA regulations to be in place late next year establishing national standards for certifying foods as organic.

A Preview of 1992 Crop Acreage

Across the U.S., farmers intend to plant more spring wheat, sorghum, corn, and rice in 1992 than last year, but plantings of soybeans, cotton, durum wheat, and barley are expected to decline, according to USDA's *Prospective Plantings* report. Released March 31, the report provides the first indication of producers' planting intentions for 1992 crops. The acreage estimates are based primarily on a survey of about 70,000 producers, conducted during the first 2 weeks of March, which asks producers to report their intended acreage for the various crops.

If the prospective planted acreages are realized, corn area would be the largest since 1985, and soybean area the smallest since 1976. Total wheat area is expected to be near last year's level, but there are substantial differences among various wheat classes.

A number of factors influence producers' decisions about planted acreage. Program parameters, like acreage reduction levels, estimated deficiency payments, price support levels, and flexibility provisions all influence the decision to participate in programs and therefore, planted acreage. Prices are also an important factor—recent price movements, relative prices among competing commodities, and price expectations based on anticipated market conditions.

Most 1992 ARP's Are Lower

Acreage reduction program (ARP) levels significantly influence the area planted to program crops—feed grains, wheat, cotton, and rice. ARP levels represent the percent of base acreage that a participating producer must idle in a conserving use in order to be eligible for program benefits. When program participation is high, a decline in a crop's ARP substantially increases the area available to be planted to that crop.

For 1992, USDA set lower ARP's for nearly all program crops. The only exception is the upland cotton ARP, which increased from 5 to 10 percent. The ARP for oats remains at zero, as mandated by the 1990 farm act.

ARP levels are generally below those of the mid-1980's. Since that time, commodity stock levels have fallen in response to a more market-oriented agricultural policy, the Export Enhancement Program (EEP) has been used aggressively, the Conservation Reserve Program (CRP) was initiated, and serious droughts occurred in 1988 and 1989. With stronger use, lower stocks, and reductions in effective acreage bases, less land has had to be idled in recent years to help achieve "balance" between supply and demand for the various commodities.

ARP's Are Lower For Most Program Crops

	1991 ARP	1992 ARP
	Percent of base acreage	
Wheat	15	5
Corn, sorghum, barley	7.5	5
Oats	0	0
Rice	5	0
Upland cotton	5	10

Relative Prices Are A Key Factor

Relative commodity prices and net returns are also important in influencing planted area. Expected market returns have always been a key factor for producers as they decide annually whether to participate in the commodity programs. For those who choose not to participate, relative prices influence the choice among competing crops, like corn or soybeans, wheat or barley.

Relative prices and net returns are also key considerations for participating producers in deciding what to plant on their "flex" acres. Normal flex acres represent 15 percent of a producer's commodity base of a program crop. These acres receive no deficiency payments and may be planted to the program crop, to other program crops, or to any other crops except those the Secretary of Agriculture does not allow on base acreage.

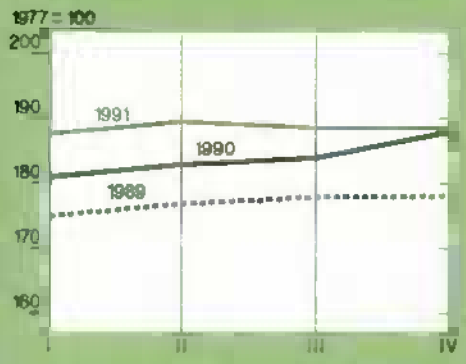
To take an example, the price relationship between corn and soybeans is particularly important for many corn participants in deciding how to use their corn flex acres (as well as for planting decisions made by nonparticipants). National average farm prices for corn for the first 2 months of 1992 were about 5-6 percent above last year's level, while soybean prices were about 1-3 percent below last year's level.

Using preliminary 1991 costs and returns, a "typical" Illinois corn and soybean producer in early 1991 could expect per-acre net market returns of $161 for corn and $157 for soybeans on corn flex acres. Using estimates for 1992, the gap between expected net market returns in 1992 is somewhat wider—$182 for corn and $157 for soybeans. (The 1992 net returns are based on February state-level farm prices for corn and soybeans, and expected yields and variable costs.)

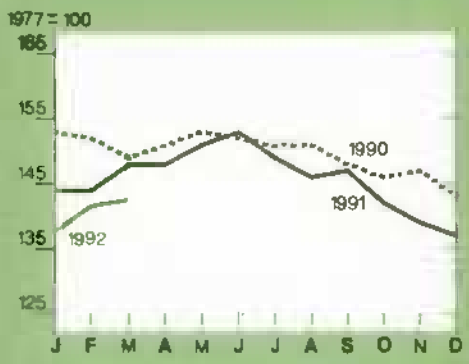
Farmers are responding to these market incentives. With the lower corn ARP—and expectations for relatively more favorable corn returns—many Corn Belt producers have indicated they will grow more corn this year and fewer soybeans. Overall, farmers in early March indicated

Prime Indicators — Agricultural Economy

Index of prices paid by farmers

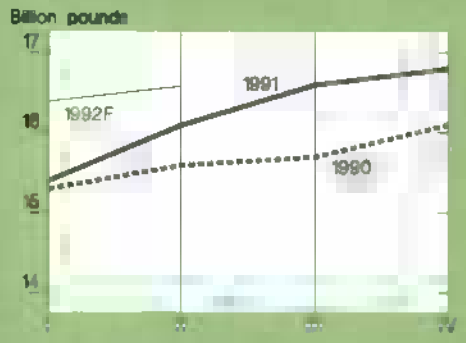


Index of prices received by farmers[1]

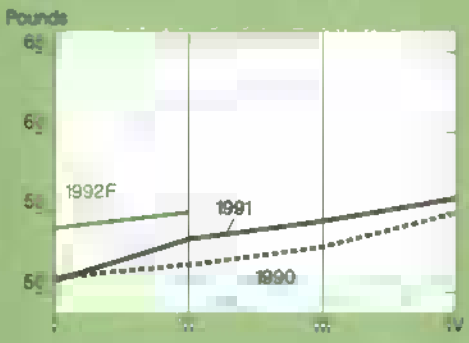


Ratio of prices received/prices paid

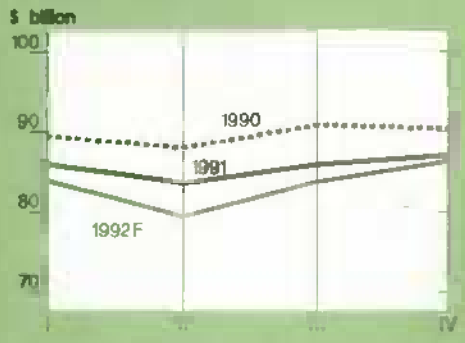
Total red meat & poultry production[2]



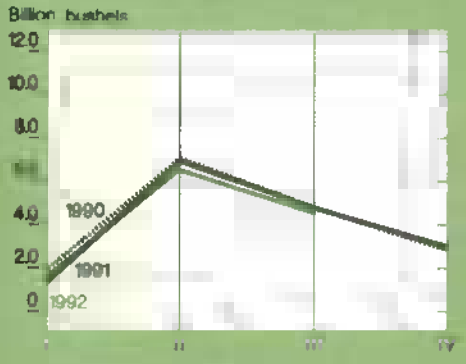
Red meat & poultry consumption, per capita[2,3]



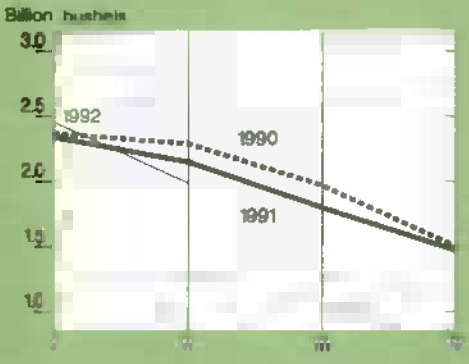
Cash receipts from livestock & products[4]



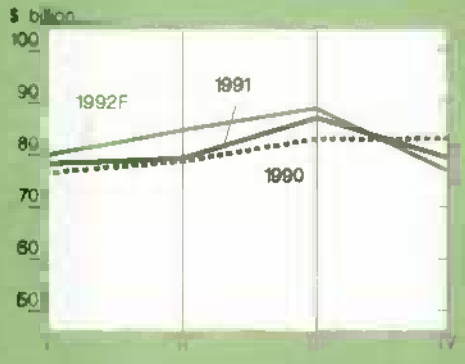
Corn beginning stocks[5]



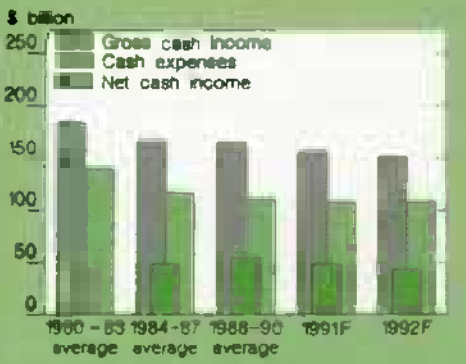
Corn disappearance[5]



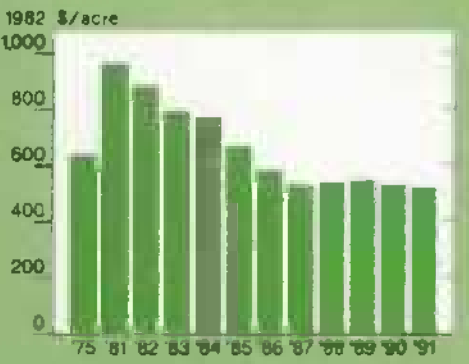
Cash receipts from crops[4]



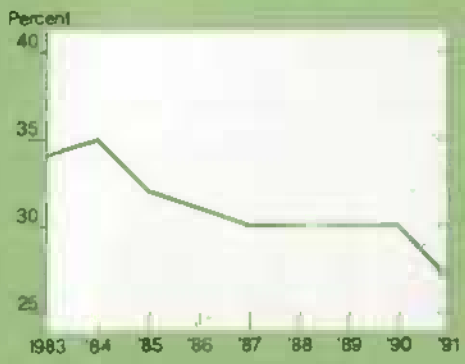
Real cash income (1987 $)[6]



Average real value of farm real estate



Farm value/retail food costs



[1]For all farm products. [2]Calendar quarters. Future quarters are forecasts for livestock, corn, and cash receipts. [3]Retail weight. [4]Seasonally adjusted annual rate. [5]I=Sept.-Nov.; II=Dec.-Feb., III=Mar.-May; IV=June-Aug. Marketing years ending with year indicated. [6]Cash expenses plus net cash income equals gross cash income. F=forecast.

Agricultural Economy

that they intended to plant 79 million acres to corn in 1992, up 4 percent from actual plantings last year.

Soybean plantings are projected at 57.4 million acres in 1992, 3 percent below 1991. In the Corn Belt, soybean acreage declines are attributed mainly to expected increases in corn planted area. In other areas—particularly in parts of the Southeast—growers are likely to plant alternative crops or even to idle previous soybean acreage in 1992. Soybean returns that were only marginally profitable over the past few years are likely a major cause.

Similar Pattern Affects Other Crops

A similar combination of factors—ARP levels and expected prices—applies to other crops. For sorghum, the lower ARP and relatively strong market prices are likely stimulating plantings at the expense of cotton and other crops, particularly in Texas.

Likewise, a lower ARP likely contributed to expected increases in rice area. Weak cotton prices, on the other hand, and an increase in the cotton ARP, likely contributed to the 5-percent expected decline in cotton plantings.

Oats are a special case. Typically, a substantial portion of planted oats acreage is used as a cover crop on ARP land and not harvested. With the generally lower ARP's in effect in 1992 for other crops, total oats plantings (for cover and for harvest) are expected down 4 percent. But in part because average farm prices for oats in the first 2 months of 1992 were about 20-25 percent above the early months of 1991, oats plantings for grain are expected up about 2 percent.

Regional Effects At Work for Wheat

Total wheat planted area is expected up only marginally in 1992, despite relatively high wheat prices in recent months compared with a year earlier, and a lower ARP. Regional variations in expected plantings by class help explain this situation.

Winter wheat area, which is seeded largely in the fall, is estimated at 50.3 million acres, down 1.5 percent from 1991. Many factors are likely responsible for the drop, including dry conditions at planting time in the Southern Plains, which affected hard red winter plantings, and poor returns for soft red winter wheat in recent years, as disease problems led to lower yields and quality problems. In addition, prices at fall planting remained well below the levels reached later in January and February. (See the March *AO*, "Why the Drop in Winter Wheat Seedings?")

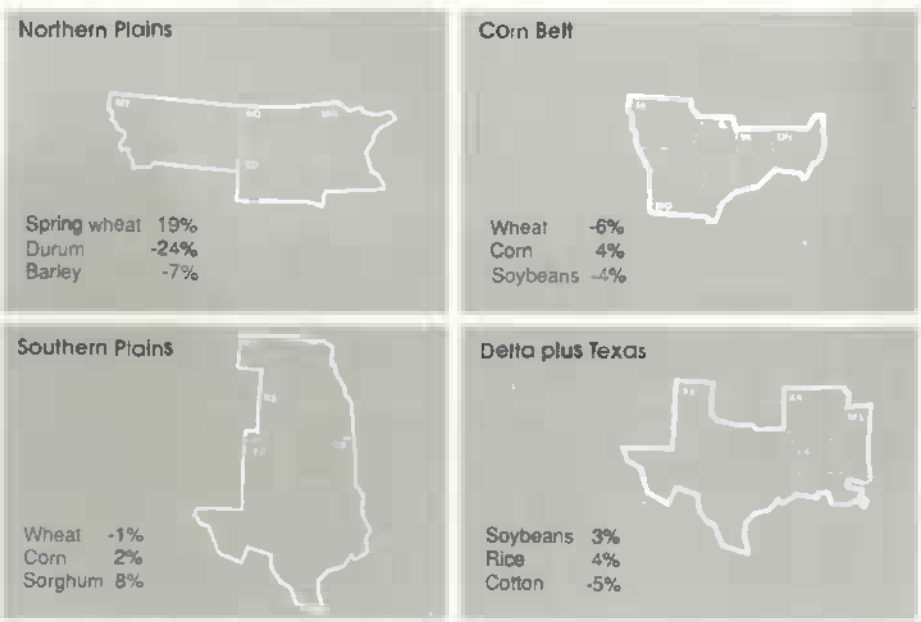
Spring wheat producers are responding differently. Excluding durum, the spring wheat area typically planted in April, May, and June is expected to exceed 17.2 million acres, up 10 percent from 1991. Larger spring wheat area is likely because tight 1991 supplies and the decline in winter wheat area have caused wheat prices to run well above a year earlier.

Furthermore, this year-to-year gain in spring wheat area is somewhat understated. That's because more than 1 million acres of winter wheat were replanted to spring wheat in 1991 due to winterkill. No such replanting is indicated so far for this year.

Planting intentions for durum, which competes with hard red spring wheat in many areas, are 2.5 million acres. If intentions are realized, durum acres would be down 22 percent from 1991 and the lowest since 1970. Hard red spring prices enjoyed a substantial premium over durum prices in recent months.

Barley also competes for area with spring and durum wheat in many areas. But while barley prices in 1992 are up slightly above last year, intended planted area is down about 7 percent. Again, relative net returns play an important role. For instance, a "typical" Minnesota hard red spring wheat and barley producer in 1991 could expect net market returns of $29 per acre for wheat and $48 for barley—compared with an expectation of $91 and $42, respectively, in 1992. (The 1992 net returns are based on February state-level farm prices for spring wheat and all barley, and expected yields and variable costs.)

Producers in Northern Plains To Hike Spring Wheat Seedings in 1992



Percent change in planted acreage from 1991.
Source: *Prospective Plantings*, March 1992.

Where Has the Acreage Gone?

Total intended area planted to all seven program crops and to soybeans is up only 1.6 million acres—at 248.3 million acres in 1992, compared with 246.7 million in 1991. (Planted area for all crops—except oats—is included in this calculation. Oats are included as harvested acres to exclude the use of that crop as cover on ARP land.) The increase in planted area for all program crops is significantly less than the decline in 1992 ARP levels or higher prices would suggest.

For instance, if participation rates and total base acres were the same as last year, intended planted area to the eight crops could be expected to increase by about 8.5 million acres. Wheat acres alone could be expected to rise nearly 6.8 million acres.

What happened to some of that acreage? Several factors could be at work. For instance, greater participation in the 0/92 and 50/92 programs could be a factor. Less double-cropping—particularly of wheat and soybeans—may also occur. Producers may also decide to fallow more acres in 1992. Some additional land has been placed in the CRP.

Weather Affects Planting Decisions

Planting intentions are only the first word on actual plantings for the crop year. Changes in relative prices and weather conditions are the two main factors that can significantly influence a producer's decisions.

For instance, weather problems were a major factor affecting planting decisions in the western Corn Belt last year. In early March of 1991, producers in Iowa and Minnesota indicated they intended to plant 19.9 million acres to corn and 13 million acres to soybeans. But wet weather at corn planting time led many of those producers to opt for soybeans, a shorter season crop that can be planted later in the year. Actual plantings to corn differed from intentions by 4 percent in those two states, and for soybeans, by 9 percent.

In addition, Northern Plains producers in recent weeks have seen significant changes in hard red spring wheat and durum price relationships. As of mid-March, hard red spring prices held as much as a 60-cent premium over durum. But because of the reported drop in durum planting intentions and recent export sales of durum, market prices at Minneapolis were much closer for the two classes by mid-April.

More information on planted area will be available in the June 30 *Acreage* report, which is based on a survey of producers during the first 2 weeks of June. *[Joy Harwood (202) 219-0840]* AO

Field Crops Overview

USDA's Prospective Plantings *report provides one of the first indications of 1992/93 crop planting intentions (see Agricultural Economy). According to that report, total wheat planted area is up only marginally from 1991, and far less than originally expected, due to a decline in winter wheat area. Corn planted area could reach the highest level since 1985, reflecting a lower acreage reduction program (ARP) level and relatively strong corn prices.*

In contrast, planted soybean area could decline to the lowest level since 1976. In the Corn Belt, expected declines in soybean area are mainly attributed to expected increases in corn plantings. In other areas, soybean growers will likely consider alternative crops or allow previous soybean acreage to lie idle in 1992. [For the latest U.S. field crop situation and outlook, see tables 17-19. The world outlook is in table 23.]

Wheat Plantings Expected Up Slightly

With tight ending wheat stocks forecast for 1991/92, the spotlight is on 1992/93 plantings and the potential size of the U.S. wheat crop to be harvested this spring and summer. According to the March *Prospective Plantings* report, total wheat area planted and intended to be planted is estimated at 70.1 million acres—only 0.2 percent above 1991's actual plantings, and far less than the expected rise given the smaller ARP for 1992.

However, the response varies considerably among producers of the various wheat classes. Spring wheat area (excluding durum) is estimated to exceed 17.2 million acres, up 10 percent from 1991. Area is expected up because of the recent high wheat prices and the decline in winter wheat area. In North Dakota, hard red spring wheat area could reach its highest level since 1952. In contrast, plantings of durum wheat, which competes with hard red spring in many areas, are indicated down 22 percent from 1991 to 2.5 million acres and the lowest level since 1970. Expected durum plantings are down 700,000 acres in North Dakota, the major producing state.

Total 1992 wheat area is up less than expected, due to the drop in winter wheat plantings, which are estimated to account

Higher Spring Wheat Plantings Offset Lower Winter Wheat Area

Wheat class	1991 actual	1992 intended	Percent change
	- - - Million acres - - -		
Hard red winter	35.5	35.4	0.2
Hard red spring	14.0	16.6	18.5
Durum	3.3	2.5	-22.1
Soft red winter	11.4	10.6	-7.4
White (winter & spring)	5.9	5.0	-15.6
Total	69.9	70.1	0.2

Totals and percent changes are based on unrounded data.
Source: USDA/NASS, *Prospective Plantings*, ERS.

Agricultural Economy

1993 Wheat ARP— What's in Store?

By June 1, wheat growers will be able to factor the 1993 acreage reduction program (ARP) into their plans for the fall crop. USDA must announce the ARP—if any—for the 1993 wheat crop by that date. USDA is not actually required to announce an ARP for 1993 wheat, given the March assessment of the 1992/93 ending stocks-to-use ratio. If an ARP is announced, however, it must be between 0 and 15 percent.

In an April 6 *Federal Register* announcement, USDA requested public comments by May 1 on ARP options including 5 percent, 0 percent, and no ARP. The analysis in the *Federal Register* indicated planted area, production, and ending stocks would be highest under the no-ARP option and lowest under the 5-percent option. The no-ARP option would also lead to the lowest prices, the highest deficiency payments, and the highest net returns for the wheat sector.

Why would planted area and production be higher under the no-ARP option than under the 0-percent option?

With no ARP, program participants face no limits on the use of planted area, while with a 0-percent ARP, producers are limited to planting wheat on their wheat base and on the flex acres of other crops. The 0/92 program would not be available if there were no ARP, so producers would have to plant wheat in order to receive wheat deficiency payments.

In addition, the no-ARP option proposed for comment in the *Federal Register* would impose "one-way" flexibility. That is, producers could plant wheat on the flex acres of other crop bases, but could not plant other crops on their wheat flex acres. Under both the 5-percent and the 0-percent options, producers would retain the current "two-way" flexibility.

USDA has until July 31, 1992 to change the ARP it announces in June. An ARP has been in effect for wheat every year since 1982—the first year in which USDA had authority to announce ARP's. In each of those years, the ARP level announced in June was not changed.

	5% ARP	0% ARP	No ARP
Participation rate (%)	85	87	90
Planted acres (mil.)	71.5	74.0	77.0
Supply/use (mil. bu.):			
Production	2,350	2,415	2,485
Domestic use	1,145	1,160	1,175
Exports	1,175	1,185	1,200
Ending stocks	645	685	725
Season-average price ($/bu.)	2.85	2.77	2.70
Income ($ mil.):			
Deficiency payments	2,105	2,342	2,623
Net income	5,301	5,439	5,658

for about 70 percent of the total. Area of winter wheat—planted last fall—is estimated at 50.3 million acres, down 1.5 percent from 1991's actual level. In the hard red winter areas, Kansas and Oklahoma plantings are at the same level as last year, while in Texas, area is estimated down 5 percent. Among the major soft red winter states, area is estimated down in Arkansas, Missouri, Illinois, and Indiana.

While spring wheat producers are now planting, winter wheat producers are looking toward harvest. As of April 19, some winter wheat was heading in the southernmost states. Freeze damage occurred in parts of Kansas in mid-March, and was most significant in the southern part of the state and into Oklahoma and Arkansas. Freeze damage has also been a concern to some producers in Illinois, Indiana, Ohio, and Missouri. In those states, 25 percent or more of the crop is rated poor or very poor, while the condition of the winter wheat crop elsewhere was generally good or fair. But problem areas are enough to leave the overall crop condition below average.

The 1991/92 crop year—which ends on May 31—is forecast to be the tightest for ending stocks since 1973/74. With the 1991 U.S. wheat crop down about 28 percent and total use projected up 3 percent, ending stocks are forecast at 366 million bushels. Season-average prices are forecast in the $2.95-$3.05 range, up from $2.61 in 1990/91.

The expected increase in 1991/92 wheat use is due entirely to higher exports, forecast up 22 percent. U.S. sales to China and the former USSR are well above 1990/91 levels, increasing U.S. market share. Strong imports by these countries have also affected world wheat trade, which is forecast at 107 million tons in 1991/92, up 15 percent from the previous year.

In contrast to the U.S. wheat export situation, domestic wheat use is forecast down 12 percent in 1991/92. Tight wheat stocks and high prices have shifted feed demand from wheat to corn and other grains.

Corn Area Anticipated Largest Since 1985

Farmers intend to plant 79 million acres to corn in 1992, up 4 percent from last year and almost 7 percent above 1990's level. This would be the largest corn

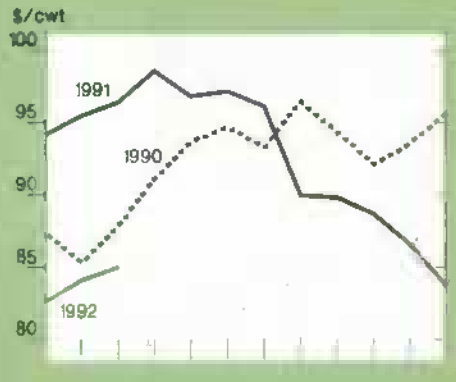
Commodity Market Prices — Agricultural Economy

Choice steers, Nebraska

Broilers, 12-city average

Corn, Central Illinois[1]

Medium steers, Oklahoma City[2]



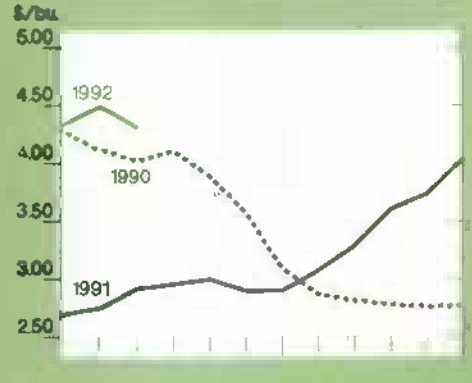
Eggs, New York[3]

Soybeans, Central Illinois[4]

Barrows and gilts, 6 markets, Omaha

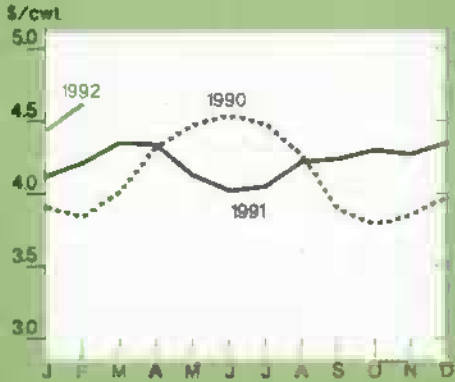
Milled rice, SW Louisiana[5]

Wheat, Kansas City[6]

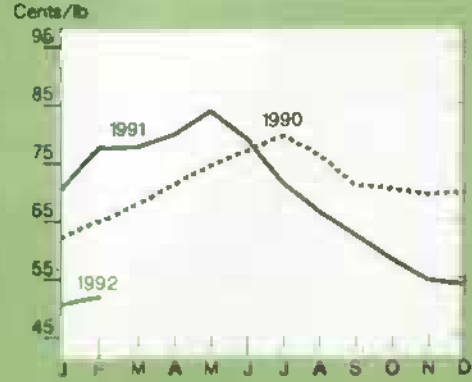


All milk

Sorghum, Kansas City



Cotton, average spot market



[1]No. 2 yellow. [2]600-700 lbs. medium no. 2. [3]Grade A large. [4]No. 1 yellow. [5]U.S. No. 2 long-grain. [6]No. 1 HRW.

Agricultural Economy

Corn Plantings To Rise, Wheat Up Marginally

Crop	1991 actual	1992 intended	Percent change
	- - Million planted acres - -		
Corn	76.0	79.0	4.0
Wheat	69.9	70.1	0.2
Soybeans	59.1	57.4	-2.8
Cotton (all)	14.1	13.5	-4.6
Sorghum	11.0	12.1	10.0
Barley	8.9	8.3	-7.1
Oats for harvest	4.8	4.9	2.3
Rice	2.9	3.0	4.8
Total	246.7	248.3	0.6

Source: USDA/NASS, *Prospective Plantings.*

planted area since 1985. Intended plantings are up 200,000 acres in Illinois, and up by the same amount in Indiana and Nebraska. In Iowa, corn area is expected up 800,000 acres, and in Minnesota, the expected increase is 500,000 acres.

Area is likely to increase because the ARP was reduced from 7.5 percent in 1991 to 5 percent in 1992, and because corn prices have been strong relative to soybeans. Season-average corn prices in 1991/92 are forecast to range from $2.30 to $2.50 a bushel, up from $2.28 last season. Soybean prices are projected slightly lower than last season.

Planted area for sorghum, like corn, is also expected to rise, and is pegged at 12.1 million acres, up 10 percent from 1991. Relatively strong sorghum prices, and an ARP decline of 2.5 percentage points, are major contributors to the increase. In contrast, barley producers intend to seed only 8.3 million acres in 1992, down 7 percent from last year. Even though a 2.5-point-lower ARP also applies to barley, strong spring wheat prices are signaling a shift to wheat over barley on flex land.

Oats are often used as a cover crop on ARP acres. Total oat plantings (for cover and for harvest) are projected 4 percent lower than last year, at 8.3 million acres. The decline is due mainly to the lower ARP's for most other crops in 1992. But relatively strong oat prices have boosted acreage intended for harvest by 2 percent. The ratio of harvested-to-planted acres is expected to increase to 59 percent, up from 55 percent in 1991/92.

By mid-April, field work and planting for 1992 crops had begun. Corn planting was underway in the Southeast, Texas, Kansas, and parts of Illinois, while sorghum planting was in full swing in Texas, Arkansas, and other southern states.

With normal yields, the increase in intended acreages imply higher feed grain production in 1992 than in 1991. For 1991, feed grain production is esimated at 218.2 million metric tons, 5 percent below 1990's level, with the decline due in large part to lower corn yields.

Total feed grain use in 1991/92 is forecast about 1 percent above last year, at just under 232 million tons. Domestic use is projected up 4 percent from last year due to larger livestock inventories and less wheat feeding. But the projected decline of 10 percent in U.S. feed grain exports is expected to limit the total use tally.

Lower supplies and slightly larger use are expected to squeeze 1991/92 feed grain ending stocks down to 36.1 million tons, 24 percent below the carryin level and the lowest level since 1975/76.

South Africa's Harvest Expected Down Sharply

World coarse grain trade is forecast at 87.8 million tons in 1991/92, up 2 percent from 1990/91. Severe drought has drastically cut corn production in South Africa, stimulating large imports and halting exports. South Africa's harvest is expected to fall two-thirds, to the lowest in 40 years, and corn imports are forecast at 2 million tons (October-September year).

The capacity of South Africa's ports to handle the volume of incoming grain—not only for South Africa, but also for other countries in the region—is a concern, however. Much of the corn needed to meet this shortfall will have to be imported well into the 1992/93 October-September trade year.

The U.S. will satisfy some of South Africa's import needs, but faces sharp competition from Argentina and Brazil. The Argentine corn crop is forecast up 25 percent following an excellent growing season, and Argentina's exports are projected to rise to 5.9 million tons, the highest since 1985/86.

U.S. Soybean Area-- As Low As 1976?

U.S. soybean plantings are projected at 57.4 million acres in 1992, 3 percent below 1991. This planted area would be the lowest since 1976. In the Corn Belt, expected increases in corn planted area are the likely reason for lower soybean plantings. In other areas—particularly parts of the Southeast—growers will likely turn to other crops, or even idle previous soybean acreage in 1992. Marginally profitable soybean returns over the past few years are likely a major cause.

For 1991/92, U.S. soybean production is estimated at 1.986 billion bushels, more than 3 percent above 1990's level. Yields in 1991 averaged 34.3 bushels per acre, 0.2 bushels above the previous 1985 record, and harvested area was up about 3 percent above 1990's level.

A strong outlook for soybean use this season is expected to tighten 1991/92 carryout stocks to 305 million bushels, down from 329 million bushels last year. U.S. soybean export sales to date are running 40 percent above last year, reflecting reduced South American supplies. Sales are up substantially to the EC, Mexico,

the former Soviet Union, and South Korea. Credit guarantees have played an important role in boosting exports to the latter three markets. In addition, U.S. soybean meal export prospects are bright because of recently increased credit for the former USSR.

U.S. exports of soybean oil were up three-quarters in mid-April from a year earlier. Increases in the Export Enhancement Program and P.L. 480 program are assisting U.S. exports of all vegetable oils, as are smaller foreign inventories. Even so, U.S. soybean oil ending stocks are forecast to reach a record 2.2 billion pounds.

In South America, soybean harvest is underway, with larger production in Brazil projected to more than offset a decline in Argentina. The 1991/92 Argentine crop is forecast at 10.3 million tons, down 10 percent from 1990/91 because of lower yields. Argentina is forecast to increase its soybean crush despite lower production and to raise soybean meal exports. But exporters face considerable uncertainty due to a recent resurgence of inflation in Argentina, tax reforms, and a decision by the monetary authority to fix the exchange rate.

Brazil's soybean crop is forecast up 17 percent to 18.5 million tons. Recently allocated government credit is intended to allow Brazilian farmers to delay marketing their crop until later in the season. If this occurs, U.S. soybean exports would benefit from continuing low South American exports in the near term, but the credits could bring heavier competition during October through January.

Despite healthy use, U.S. season-average soybean prices are forecast to range from $5.45 to $5.75 per bushel, compared with last year's $5.74. Larger Brazilian supplies of soybeans, currently being harvested, will likely dampen U.S. price increases in the remaining months of 1991/92.

Rice Area Projected Up in Six States

Rice growers intend to seed nearly 3 million acres to rice in 1992, a 5-percent increase from 1991. Planting intentions are up in all six producing states, due in part to stronger prices and a reduction in the ARP from 5 percent to zero. In addition, water supplies have improved in California, alleviating some of last year's constraints. As of mid-April, rice planting was well underway in Texas, Louisiana, Mississippi, and Arkansas.

Planting intentions indicate that 1992 production may exceed 1991 output. For 1991, U.S. rice production is estimated at 154.5 million cwt, 1 percent below 1990. Acreage was down in California due to reduced water availability, and in some Delta areas because persistent rainfall at planting time reduced acreage.

Forecast total use in 1991/92, at 154.8 million cwt, is down about 5 percent from 1990/91's level. Domestic use continues to grow and is forecast up 3 percent from last year, at 94.8 million cwt. But 1991/92 exports, at 60 million cwt, are projected down over 15 percent. The U.S. market share is forecast to fall as prices continue high relative to Asian competitors, shutting U.S. exports out of some markets.

U.S. ending stocks are forecast at 30.2 million cwt for 1991/92, 23 percent above last year. The resulting stocks-to-use ratio is pegged at 19.5 percent, up from 15.1 in 1990/91, and prices are projected to range between $7.40 and $7.60 per cwt in 1991/92, compared with $6.70 in 1990/91. Among other factors, holding by producers has contributed to the high prices despite a higher stocks-to-use ratio.

World rice production in 1991/92 is forecast down 1 percent, and world trade in calendar 1992 is projected at 13.5 million tons, up 9 percent. Expected increases in imports by Indonesia and Middle Eastern countries are fueling most of the gain in trade.

Cotton Area May Fall 5 Percent

Area planted to cotton in 1992 is expected to total 13.5 million acres, 5 percent below 1991 plantings but 9 percent above 1990. Relatively weak cotton prices in recent months and a higher upland cotton ARP—from 5 percent in 1991 to 10 percent in 1992—account for most of the decline in planted area. As of mid-April, cotton planting was underway in Texas, Arizona, New Mexico, California, and other states.

The drop in expected area in 1992 could keep production below 1991's near-record level. For 1991/92, cotton production is estimated at 17.5 million bales, up 13 percent from last year and the highest since 1937.

Total cotton use in 1991/92 is estimated at 16.2 million bales, down marginally from last year. U.S. cotton exports, at 6.8 million bales, are down almost 13 percent from last year. But domestic cotton mill use, forecast at 9.4 million bales, is the highest since 1966/67.

With larger production and smaller use, U.S. cotton stocks are expected to be somewhat replenished this season. Ending stocks in 1991/92 are forecast to reach 3.8 million bales, bringing the stocks-to-use ratio to 23.5 percent.

World cotton production in 1991/92 is estimated at a record 95.4 million bales, 10 percent over 1990/91. Further gains in Pakistan's record crop output is leading to higher world ending stocks and intensifying trade competition. In the Southern Hemisphere, harvest is just underway. Among key producers, large outturns are expected in Australia, Brazil, Argentina, and Paraguay, while drought will cut South Africa's crop sharply.

World cotton trade is forecast to decline for the third consecutive year. Foreign exports are expected to rise 5 percent, and U.S. exports to fall 13 percent. This would result in a U.S. market share of nearly 30 percent, still slightly above average. [Joy *Harwood (202) 219-0840. and Pete Riley (202) 219-0821]*

For further information, contact: Sara Schwartz, world food grains; Edward Allen, domestic wheat; Janet Livezey, domestic rice; Pete Riley, world feed grains; Tom Tice and Jim Cole, domestic feed grains; Nancy Morgan, world oilseeds; Roger Hoskin and Scott Sanford, domestic oilseeds; Carol Whitton, world cotton; Bob Skinner and Les Meyer, domestic cotton. World information (202) 219-0820; domestic (202) 219-0840. AO

Livestock, Dairy & Poultry Overview

Large supplies and weak prices characterize the pork, poultry, and egg sectors in 1992. All signals point to slower expansion in these markets in 1993. Meanwhile, the cattle expansion continues, although beef prices will be limited by abundant supplies of all meats competing for the consumer's meat dollar.

The latest Hogs and Pigs *report, released March 27, shows producers continue to expand breeding herds. According to the report, however, the March 1 breeding herd was only 3 percent higher than a year earlier. Likewise, year-to-year increases in the broiler-type hatching-egg flock have slowed from about 4 percent on February 1 to 3 percent March 1. Turkey stocks continue to build, reaching 354 million pounds on March 1, about 3 percent above last year.*

The cattle outlook is marked by increased slaughter, and a rise in dressed slaughter weights—from close to 630 pounds in the early 1980's to almost 700 pounds in 1991. These heavier but leaner cattle are a result of new feeding and breeding technologies. [For the latest update on livestock, dairy, and poultry markets, see tables 10-16.]

Hog Herd Expansion Slows

The latest *Hogs and Pigs* report, released March 27, shows producers continuing to expand breeding herds, but at a slower rate. The breeding herd on March 1 was 3 percent higher than a year earlier. Last December, the breeding herd was 5 percent higher than 1990. Poor producer returns since last November are responsible for moderating the expansion.

Farrowing intentions reported for the next 6 months provide further evidence of a slowdown. Producers plan to have 6.4 million sows farrow during March-August, up only slightly from a year ago. During September-February, the number of sows farrowing was up 6 percent over the previous year.

Given the expected price outlook facing most producers, unfavorable returns are likely throughout the year. As a result, producers are expected to reduce herds later this year. This should lead to declining pork production and higher prices in 1993. Until then, the current market hog inventory and farrowing intentions virtually assure record commercial pork production this year, projected at 17.2 billion pounds.

But with large supplies of pork and other meats, hog prices are expected to average around $40 per cwt for 1992. This would be the lowest average price since 1980, the last year of record pork production. Farrow-to-finish producers need a price in the mid-$40's per cwt this year to break even, excluding any unforeseen boost in feed costs.

Broiler Producers Need Strong Summer Sales

Lower net returns during the first quarter of 1992 continue to prompt broiler producers to hold back on expansion plans. Year-to-year increases in the broiler-type hatching-egg flock, an indicator of production 3 months out, have slowed from about 4 percent on February 1 to 3 percent on March 1. While the number of chicks hatched during February mean April production will be up around 7 percent from a year earlier, weekly chick placements in March were up only 1-2 percent.

Smaller year-to-year increases in the hatchery supply flock are expected to continue through September. As a result, broiler production expansion is expected to slow during the second half of the year. Increases in the estimated hatchery supply flock from May 1992 is averaging about 4 percent from a year earlier, compared with a rise of almost 7 percent from 1990 to 1991. Wholesale prices for whole broilers have been averaging slightly below a year earlier since January 1992. Second-quarter wholesale prices for whole birds will likely average 2-3 cents a pound below 1991, but steady in the low 50's.

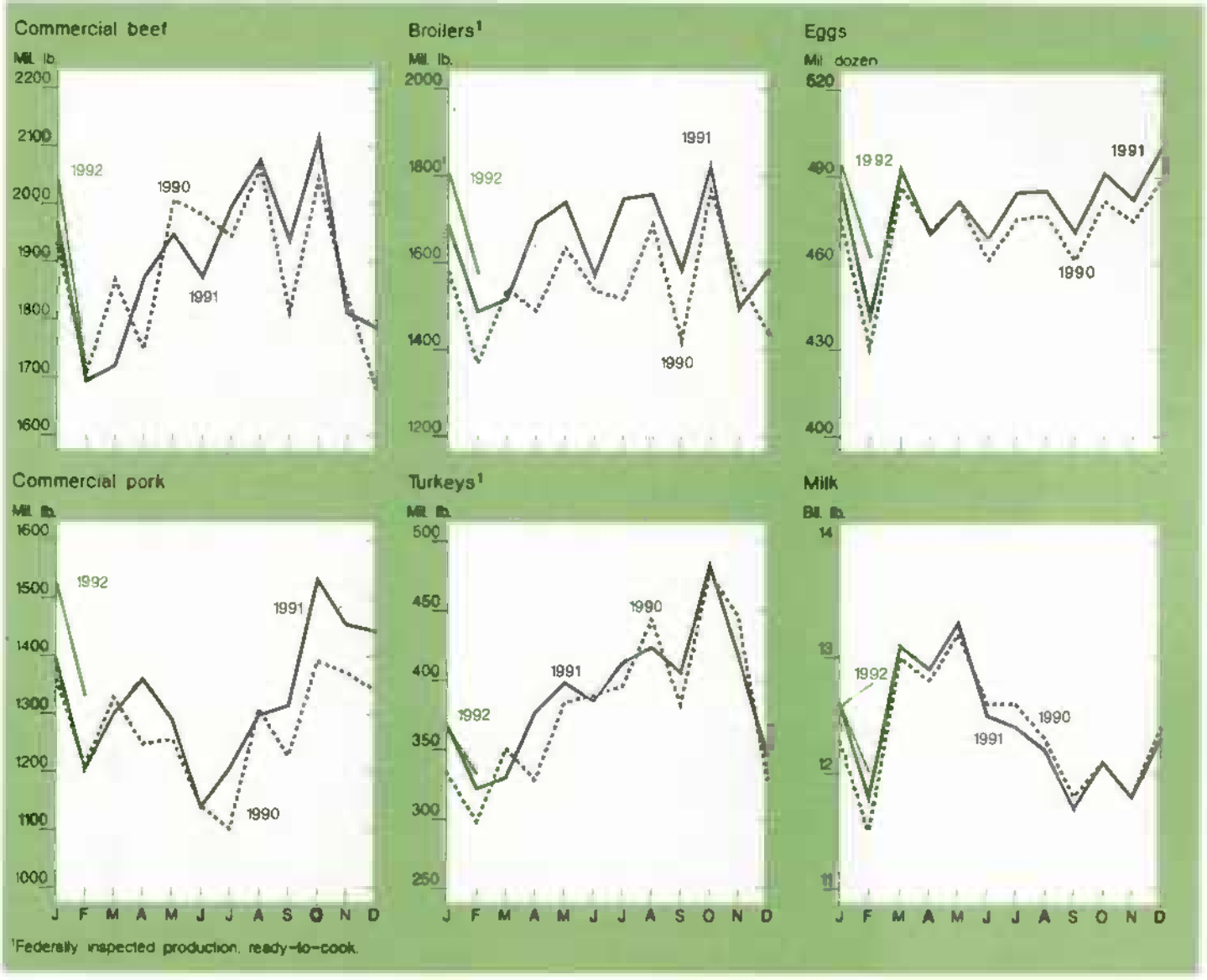
Despite plentiful turkey and red meat supplies and sluggish demand, producers are pinning hopes for prices on continuing strong broiler exports and the typical stronger demand for broiler cuts as the summer "barbecue" season approaches. The demand for breast meats advanced in March, reflected in prices above a year earlier, and provided some support to whole bird prices. Retail prices for whole broilers during the second quarter are expected to average in the mid- to high 80's, slightly below a year ago.

Turkey Stocks Build, Prices Low

First-quarter turkey production grew at a slightly slower rate than during 1991. Poult placements indicate that second-quarter output will be up 2-3 percent, compared with a 5-percent growth during second-quarter 1991. Producer losses continue to discourage large increases in placements for the second half of 1992.

Turkey stocks in cold storage continue higher, and on March 1 totaled 354 million pounds, about 3 percent above last year. Slow sales early this year are behind the stock increases. Even bargain retail prices failed to keep stocks from building. More price specials will be

Livestock & Product Output



needed to raise sales and compete with large supplies of low-priced hams and other pork. Per capita consumption for 1992 overall is expected to increase about 1 percent from 19 pounds in 1991, the slowest annual growth in consumption since 1984.

Wholesale prices moved up in March, but not above last year's low level. Anticipation of Easter sales may have provided part of the boost, but stronger first-quarter exports also helped prices. For the first quarter, Eastern region wholesale hen prices were at about 56 cents per pound, the same as last year.

As the second quarter progresses, prices are expected to increase seasonally. Sales during the Easter season will give an indication of prices for the second quarter. Prices are expected to average 56-60 cents, and net returns will remain below breakeven, with little encouragement to increase poult placements significantly in the second quarter.

During the second half of 1992, slow production increases and a stronger economy should provide some support to prices. But for the year overall, Eastern region hens will still likely average only 57-63 cents per pound, compared with last year's 61.3 cents.

For the last 5 years, first-quarter net returns were below breakeven. Weak turkey prices, and feed prices averaging 5-6 percent above 1991, will likely result in continued losses during most or all of the first half of 1992. Third-quarter returns, however, are expected to be near breakeven, followed by positive net returns during the fourth quarter.

Egg Prices Continue Weak

Weak wholesale prices continue to cloud the outlook for the egg industry, even as the flock size adjusts to near the level of a year ago, around 271 million layers on

Agricultural Economy

April 1. Table-egg production in the first quarter was nearly 2 percent larger than last year. Reductions in flock size will likely shore up wholesale prices in the second quarter, but at 63 to 67 cents per dozen, prices will remain a few cents below last year.

The price increases usually associated with the Easter season were anemic, with New York wholesale prices on average about 30 percent below last year, and retail prices off about 15 percent. Lower prices are expected for the rest of the year, with quarterly prices firming in the fourth quarter. Coupled with slightly higher feed costs through the third quarter, the poor price performance will bring net returns for the year to 4-5 cents per dozen, the lowest since 1988.

Other signs of weakness are beginning to appear in the egg product market. For example, while the use of eggs for breaking (used in egg products) continues well above last year, the March 1 inventory of frozen eggs in cold storage was one-third higher than last year, and on April 1 was 40 percent higher.

Consumers will see lower retail prices compared with last year. Second-quarter retail prices are expected to average around 88 cents per dozen, compared with 93 cents a year ago. As the year progresses, prices are expected to edge toward the low 90's per dozen, with the highest prices in the fourth quarter.

Like broilers, exports of eggs are expected to be strong in 1992, at about 150 million dozen, although slightly below 1991's level, and well below the levels of the early 1980's. First-quarter exports were strong to Japan, Canada, and Hong Kong, but weaker in Mexico. EEP sales continued strong to Hong Kong, as well as the Middle East, although at a slower rate. Second-quarter exports are expected to be about the same as last year.

Cattle Inventory Still Expanding

In 1992, expanded feeder cattle supplies will support an increase in both fed and nonfed cattle slaughter. Cow slaughter is also expected to increase as older cows are culled and more replacement heifers enter the cow herd. Slaughter weights are expected to continue rising, but the rate of increase will slow with the addition of more nonfed cattle to the mix.

Per capita beef consumption is expected to approach 68 pounds in 1992. Retail prices in 1992 are expected to average slightly above 1990's $2.81 but well below the $2.88 recorded last year. Retail beef prices averaged a record $2.95 in first-half 1991 before declining to about $2.80 a pound in early fall through January 1992. Prices rose seasonally in late winter to $2.82 in February and $2.86 in March.

While 1991 marked the third year of cattle inventory expansion, it was also likely the low point in per capita supplies of beef available for consumption. Per capita beef consumption declined to 67.3 pounds in 1991, as nonfed cattle slaughter dropped to the lowest level for this cattle cycle. Cow slaughter, the largest component of nonfed slaughter, dipped to 5.6 million head, down 5 percent from 1990 and 35 percent from the peak of 8.6 million in 1984. The low cow slaughter reflects larger numbers held back for herd expansion because of positive net returns for the last several years.

Nonfed steer and heifer slaughter has also declined sharply as more of these cattle are bid into feedlots. Nonfed steer and heifer slaughter has remained below 1 million head annually since 1988, well below the average 2-3.5-million slaughter levels of 1980 through 1987. Meanwhile, fed cattle slaughter has been braced by a cut of more than 50 percent in calf slaughter since the mid-1980's as an increasingly larger proportion of dairy calves are also bid into the feedlots.

Fed cattle marketings and slaughter declined slightly in 1991, but remained in the range of 25 to 26.5 million head, which has persisted since the early 1980's. The heavier but leaner cattle are a result of new feeding and breeding technologies. The proportion of slaughter cattle moving through feedlots has increased from close to 70 percent a decade ago to nearly 80 percent in 1991. Offsetting the downward trend in cattle slaughtered was a rise in dressed slaughter weights—from nearly 630 pounds in the early 1980's to almost 700 pounds in 1991.

Lower Dairy Surplus Expected in 1992

Net dairy removals from the market by government purchases are expected to decline in 1992, because economic growth and favorable retail dairy prices should boost sales. Although returns to milk production are not projected to be unfavorable, milk output is expected to hold at about the same level as 1991's 148.5 billion pounds.

Total Commodity Credit Corporation (CCC) removals of milkfat were large in January-March, but slightly below a year earlier. Contracts have been signed for substantial exports of butteroil and butter under the Dairy Export Incentive Program (DEIP), helping reduce CCC's butter purchases. Butter removals are expected soon to drop well below a year earlier because of growth in sales of milkfat.

No cheese and very little nonfat dry milk were purchased by CCC in early 1992. Even when DEIP exports of modest amounts of nonfat dry milk and cheese are added to the totals, CCC net removals on a skim solids basis have been small thus far this year. The skim milk surplus is projected to be small in 1992, less than 2 percent of total milk production. Tight markets for skim milk have already generated counterseasonal increases in nonfat dry milk and cheese prices.

The surplus of milkfat in 1992 is projected to be about 5 percent of production, down from about 7 percent in 1991. However, the size of milkfat removals will be affected substantially by general economic conditions.

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Specialty Crops Overview

Farmers' intended plantings for specialty crops are provided in the Prospective Plantings *report, released March 31. The report is based on a survey of 70,000 producers, taken in the first 2 weeks of March.*

In response to high carryover stocks and low prices, farmers plan to cut dry bean area by 22 percent in 1992, according to the report. March intentions also indicate acreage increases of 3 percent for sweetpotatoes, 1 percent for tobacco, and 2 percent for sugarbeets.

Vegetable processors expect to contract for 18 percent less tomatoes by weight in 1992, due to large stocks and lower prices to processors. Their plans also call for less sweet corn, snap beans, and cucumbers for pickles, but more green peas. The wholesale value of U.S. floriculture production rose 2 percent in 1991 from the previous year, continuing the 1990 growth. [For the latest specialty crop market outlook, see tables 20-22.]

Less Dry Bean Area, More Sweetpotatoes

According to the March *Prospective Plantings* report, farmers plan to reduce dry edible bean plantings by 410,000 acres in 1992, a 22-percent drop from last year. Relatively high carryover stocks and low prices for the last 2 years—especially for pinto, Navy, and Great Northern beans—are primary reasons for the decrease.

Intended plantings represent the acreage that, as of mid-March, farmers report will be planted. Actual planted acreage may differ from intentions due to weather or changes in the availability of production inputs, market conditions, or price expectations for the future season.

The largest acreage declines of dry edible beans will occur in North Dakota (100,000 acres), and Michigan (70,000 acres), down 19 and 20 percent from 1991. Growers in Nebraska and Idaho plan to reduce plantings by 35 and 34 percent.

Colorado plans on 20,000 fewer acres this year. North Dakota and Colorado are the major pinto bean producers, with Colorado accounting for nearly a quarter of pinto bean production in 1991. Pinto bean output in 1991, while unchanged from 1990, was 44 percent above 2 years ago. Prices have been averaging about 15 percent below a year earlier, due in part to weak exports.

Michigan and North Dakota are the major producers of Navy beans. Navy bean prices are lower this spring than a year ago due mainly to a 20-percent rise in production in 1991.

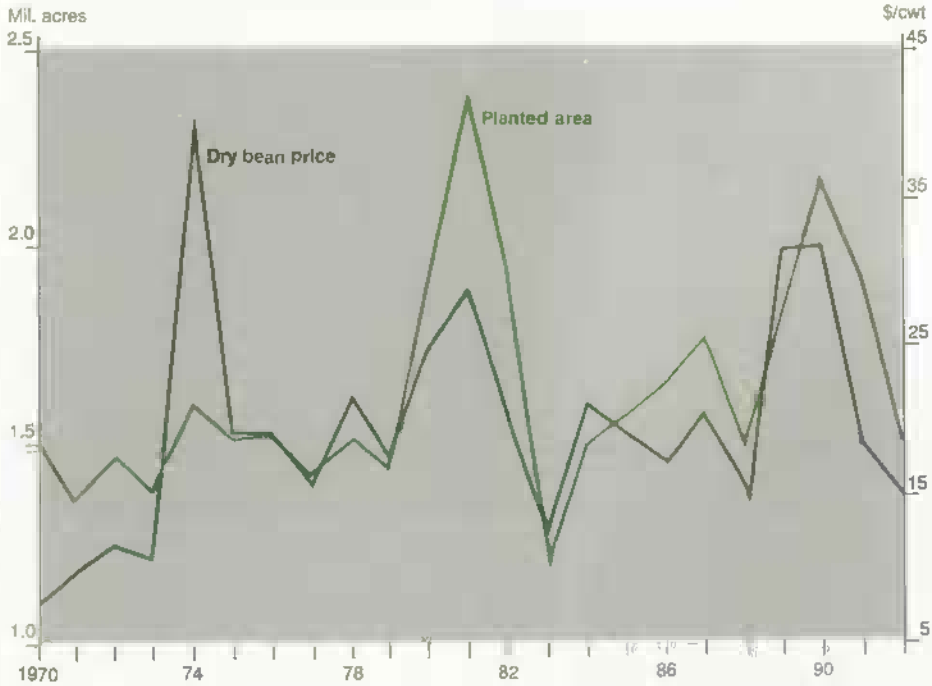
California growers plan to reduce dry bean acreage by 12 percent. California is a key supplier of several specialty dry beans, such as lima, blackeye, pink, kidney, and garbanzos. Currently, California bean prices are mixed—garbanzo and kidney bean prices are higher this spring than a year earlier, but blackeye and lima prices are lower.

Sweetpotato growers plan to boost acreage 3 percent over 1991 planted area in response to higher grower prices this spring. Sweetpotato production in 1991 was 9 percent lower than in 1990 and as a result, grower prices rose during the 1991/92 marketing season.

The nation's top two sweetpotato producers, North Carolina and Louisiana, accounted for 59 percent of U.S. production in 1991. The largest increases are expected in Louisiana, where intentions rose 12 percent above 1991 acreage. North Carolina's intentions remain unchanged from last year.

Although planting intentions are not reported for Irish potatoes, growers are expected to cut 1992 acreage from last year. A record-large 1991 fall crop has driven prices to the lowest level in several years. Growers typically cut potato acreage following a season with low prices.

Dry Bean Acreage Tracks First-Quarter Prices



1992 based on *Prospective Plantings*, indicated as of mid-March.

Sugarbeets & Tobacco Area Up

Sugarbeet growers plan 2 percent more acreage in 1992, judging from March planting intentions. In most major sugarbeet states, planting intentions indicate some increase, with Idaho showing the largest. The increase in Idaho may reflect a shift away from potatoes, which have seen lower prices recently. The Idaho sugarbeet industry has also increased processing capacity over the last several years.

Over the last decade, production in most sugarbeet growing areas has been rising. The U.S. sugar program likely contributed to the expanded output by stabilizing grower prices and maintaining domestic sugar returns above world prices. In addition, new growing and processing technologies have increased production efficiency. Bucking the trend are California growers, who have cut sugarbeet acreage over the past 10 years due to disease problems and opportunities for more profitable crops.

Tobacco growers indicate plans for an additional 9,100 acres in 1992. Flue-cured area will be up 4,400 acres and burley area up 5,400. Other types will be down about 700 acres. The 1-percent increase in 1992 flue-cured acreage reflects increased exports and larger manufacturer buying intentions for domestic tobacco. The effective flue-cured quota for 1992 is about 900 million pounds compared with 891 million for 1991. The effective quota includes unused quota carried over from the previous year.

Despite a reduced burley quota, farmers intend to plant about 2 percent more acreage than last year. The increase reflects large unused quotas from last year, higher prices, and relatively high unemployment in tobacco growing areas. In addition, Tennessee quotas may now be transferred across county lines, facilitating consolidation of small quotas into larger, more efficient operations.

Legislation passed in 1990 permits limited sale of burley tobacco marketing quotas within counties for the first time. As a result, undermarketings of burley are expected to decline as small quota holders sell unused quotas to larger producers. The average size of flue-cured quotas grew after sales were permitted in 1982.

Processing Vegetable Area Down

Processors expect to contract for 8 percent less area for processing vegetables in 1992 than last year. Tomatoes lead the decline with a 25-percent drop in area. Snap bean area is down 10 percent while sweet corn and cucumbers for pickles are each down 3 percent, but green pea area is up 2 percent. In 1991, contracted area encompassed 98 percent of total processing vegetable acreage.

Although contracted area for tomatoes is down 25 percent, tonnage is expected to fall only 18 percent in 1992. Higher yields are expected to make up the difference. California canners, who process about 90 percent of total canned tomato output, expect 19 percent less production on 25 percent fewer acres in 1992. Contracted acreage and tonnage is down in nearly all producing states.

The sharp cut in tomatoes reflects a production-consumption imbalance, particularly in tomato paste. Six new processors in California—primarily tomato paste producers—have come on line since 1988, and production has far outpaced consumption. Stocks, much larger than intended, have depressed wholesale prices.

Floriculture Sales Up 2 Percent

The wholesale value of floriculture crop production continued to grow in 1991, rising 2 percent from 1990. For USDA's 28-state survey of floriculture crops, the equivalent wholesale value of sales totaled $2.57 billion for commercial growers with $100,000 or more in floriculture sales, up from $2.51 billion in 1990.

The biggest gains came from sales of potted flowering plants (up 6 percent) and bedding plants (up 8 percent). Growth in bedding plant sales reflects continuing high interest in home gardening. Domestic grower sales of cut flowers and foliage plants declined, due in part to continuing strong import competition. The value of production of cut cultivated greens increased 3 percent.

Growers of cut flowers indicate plans to further down-size production area in 1992. Intended 1992 production for virtually all the cut flower categories is smaller than in 1991.

Import quantity of cut flowers and cut decorative greens, at 3.7 billion stems, rose 7 percent in 1991, compared with 1990's gain of 22 percent. The import value rose more slowly in 1991 because of lower prices and a greater share of lower valued items, such as carnations and pompon chrysanthemums.

The greenhouse/nursery industry, of which floriculture products are a major part, has been one of the fastest growing agricultural sectors in recent years. Grower receipts were an estimated $8.1 billion in 1990, nearly 10 percent of all farm crop cash receipts. *[Glenn Zepp (202) 219-0883]*

For further information, contact: Dennis Shields and Diane Bertelsen, fruit and tree nuts; Gary Lucier, vegetables; Peter Buzzanell, sweeteners; Doyle Johnson, greenhouse/nursery; Verner Grise, tobacco; David Harvey, aquaculture; Lewrene Glaser, industrial crops. All are at (202) 219-0883. AO

Commodity Spotlight

Roberta Cook

Success Steady in Organic Produce

The organic produce industry has been quietly gaining ground for several years, despite lagging supermarket sales and the tentative response of big food processors. Sales through other outlets are on the rise, as are the number of growers. The amount of acreage devoted to organic orchards, vineyards, and vegetable farms has also been expanding.

Traditionally, natural food stores have been the market for organic products, accounting for the bulk of organic produce sales in 1990. According to a 1990 Survey by the *Natural Foods Merchandiser*, organic produce sales through natural food stores increased 39 percent over 1989, to $182 million, despite higher prices. This followed a 68-percent increase between 1988 and 1989. Direct consumer sales of organic produce were estimated in excess of $150 million in 1990, up 33 percent from the previous year.

In the past, most natural food stores were small and focused mainly on sales of vitamins rather than food products. Today, many independent natural food stores are beginning to resemble supermarkets in size and range of product offerings. USDA defines a supermarket in terms of minimum level of annual sales, with that minimum set at $3.1 million in 1990. An increasing number of natural food stores meet this criterion.

Natural Foods Merchandiser reported 236 independent natural food stores in 1990 with average store sales of almost $3.5 million. Although they were barely 4 percent of all independent natural food stores in 1990, they accounted for 29 percent of natural food sales and are growing faster than the small or medium-sized stores.

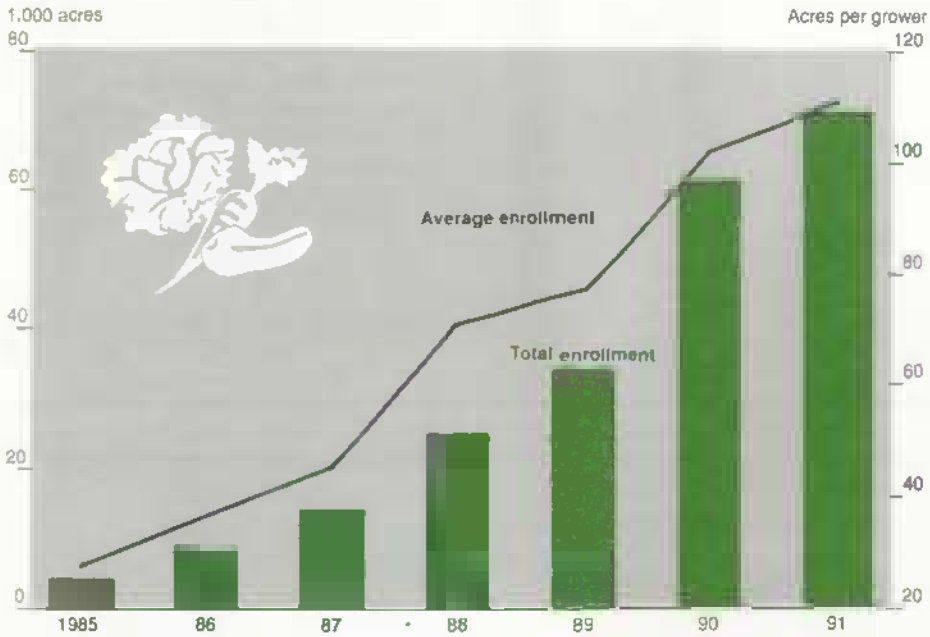
The number of organic growers has also been increasing. A survey by the *Christian Science Monitor* in early 1991 estimated that the number of certified organic farmers nationwide more than tripled between 1988 and 1990, to 3,447 certified growers. A University of California survey reports a total of 5,328 organic growers in 1990, including both certified and noncertified growers.

The California Certified Organic Farmers (CCOF), one of the largest certifying organizations in the country, reports that the number of growers and acreage enrolled in its program has climbed steadily since the mid-1980's. In 1985, 150 growers were enrolled, with 4,000 acres under organic production. By 1991, 650 growers enrolled 71,000 acres. Average acreage per grower also climbed steadily from 27 acres in 1985 to 109 acres in 1991. CCOF also reported that 38 of the enrolled growers farmed organically on over 1,000 acres each.

Fruits & Vegetables Take Half of CCOF's Area

Fruit crops were grown on 19,310 acres and vegetable crops on 15,339 acres, together accounting for half of CCOF's enrolled acreage in 1990. Enrolled fruit acreage nearly doubled from the previous year, and vegetable acreage more than doubled. Grapes for wine were the most prevalent fruit crop reported (30 percent of the fruit acreage), followed by table grapes (22 percent), and apples (15 percent). Other fruit crops being certified included berries, citrus, dates, figs, kiwis, and pears.

Organic Farming Climbs Steadily In California



Organic certifications in California.

Commodity Spotlight

Among vegetable producers, most reported growing a mix of different vegetables rather than individual crops. The larger individual crops reported included potatoes (on 14 percent of the total vegetable acreage), carrots (10 percent), and melons and squash (6 percent). Beans, peas, broccoli, lettuce, garlic, onions, and tomatoes were among the other vegetable crops being certified.

Why Not Go Mainstream?

Why don't supermarkets carry more of these organic fruits and vegetables? Supermarket sales of organic produce amounted to only $34 million in 1989, and dropped to $21 million in 1990. Many industry participants concur with the chief reasons given by retailers and wholesalers in a recent survey—organic produce is "too expensive" and "lacks sufficient supply."

While the organic industry works to improve quality, consistency, and availability of organic products, the higher price remains an obstacle for many consumers. Although consumers consistently report a willingness to pay more for organic produce, the price premium of 30 percent or more at retail may be too high. Results from a recent study at Colorado State University indicate that despite strong consumer demand for organic produce, it is very price-sensitive.

In the Colorado study, demand was estimated for lettuce, carrots, broccoli, tomatoes, and other organic produce items by showing a range of prices to consumers and asking them to specify the prices as reasonable or too high. The researchers found that the average price premium in the surveyed stores was 64 percent, but that the average premium consumers were willing to pay was 24 percent. Consumers rated organic and conventional produce the same on appearance and nutritional value, conventional produce was rated best for price, and organic fared best on the criteria of chemical residues, family health, and environmental impact. Frequent buyers of organic also maintain that the flavor is superior.

Certified Organic— What Does It Mean?

Organic growers and processors often have their products and operations inspected to certify that they are using only approved materials and practices. Certification is currently done by both state and private agencies, with 16 states and about 25 private certifying organizations providing inspection services.

Currently, organic certification is voluntary in every state except Idaho, Ohio, Rhode Island, North Dakota, Virginia, and Washington. California Certified Organic Farmers is a private agency that certifies more produce than any other group nationally. CCOF was organized in 1974 by organic growers interested in verifying that their products meet certain standards.

Although about half the states already have organic standards, the standards vary widely between states. Standards vary on which materials are acceptable as inputs for organic production, for example, and on the level of pesticide residue an organic product may contain. Synthetic pesticide residues may show up in organic food not because they were used in production, but because of residual environmental contamination. State requirements for organic products vary from 1 to 10 percent of EPA tolerance levels for nonorganic products.

The Organic Foods Production Act of 1990 requires that all except the smallest organic growers will have to be certified by a state or private agency accredited under national standards currently being developed. These standards are set to be in place by October 1993.

Organic produce commands a premium at the grower level, as well as at the wholesale and retail levels of the marketing chain, reflecting the limited supply as well as higher production and marketing costs. Grower and wholesale prices reported by USDA for fruits and vegetables do not distinguish between organic and conventional produce, and the U.S. Department of Labor does not report separate retail prices for organic. But an industry publication, the *Organic Wholesale Market Report*, has published average wholesale prices received for organic produce since 1985.

According to this report, based primarily on a survey of organic distributors in California and Oregon, the price premium for organic produce is both significant and variable. For example, average prices reported for organic Romaine lettuce and cherry tomatoes during 1990 and 1991 averaged 100 percent above the Los Angeles terminal market price, and varied from 5 to 258 percent higher. The most recent report—February 14, 1992—showed average prices for organic #1 bagged carrots 80 percent higher than those at the Los Angeles terminal market, organic russet potatoes (70-80 count) 169 percent higher, and organic jumbo yellow onions 247 percent higher.

Most production cost studies have found that costs are higher for organic produce because of the more intensive use of hand labor or lower yields, but these studies have not included long-range and broader costs in their comparisons.

Beyond the farm gate, transportation, storage, and marketing costs for organic produce may also be higher than for conventional produce because the distribution system is not as well developed. Organic growers may experience transportation problems because of their smaller loads. Organic distributors and retailers may also have higher handling charges because organic produce cannot be treated with fungicides that enhance shelflife, and because it may take extra time to verify that produce handled by the myriad of certifying groups is organic.

National Certification Will Help

Congress passed the Organic Foods Production Act as part of the 1990 farm legislation. The objectives are to define national standards for organic food,

assure consumers that food marketed as organic meets these standards, and facilitate interstate trade in organic foods. The Secretary of Agriculture is required under the law to establish a certification program that will set national standards for the production, handling, and marketing of organically produced foods.

Among the key provisions of the Organic Foods Production Act are the creation of a National Organic Standards Board (NOSB) and development of an accreditation program for certifying organic farm and processing operations. Activities of the NOSB include development of a national list of approved materials for organic food production and processing, which will be published for comment in the *Federal Register*.

An operations charter for the NOSB was approved last summer, and USDA appointed most of the 15-member Board in February 1992. The board members have expertise in organic farming, handling, environmental protection, and consumer affairs. A final member, the certification agent, will be appointed to the Board after national organic standards are set. The Board's first meeting was held in March 1992, and established committees and set priorities for developing standards and accreditation procedures. Future meetings are planned in May and July 1992.

The standards and procedures being developed by USDA and the board are set to be in place by late next year. National certification may help the organic industry in two ways. Certification could lower marketing costs for organic produce by facilitating the task of verification. The industry may also be aided indirectly with the image enhancement from a label or seal assuring that the national standards have been met.

Tapping the International Market

Exports are a growing part of the business for U.S. organic growers, processors, and distributors. Although much of the international trade is in organic beans, grains, and other less perishable commodities, the market for organic fruits and vegetables is growing. The *1991 Directory of Organic Wholesalers* lists companies in various countries, including England, Japan, Canada, and New Zealand, as buyers of organic produce. The list of products includes fresh apples, carrots, citrus, sweet corn, lettuce, melons, onions, peaches, and many other fresh produce items, as well as processed products like baby food, juice, and frozen fruits and vegetables.

The U.S. is in the vanguard of international efforts to regulate and facilitate organic production, handling, and trade. Soon after the Organic Foods Production Act of 1990 was passed, the European Community proposed an organic production regulation, including recent regulations established for organic imports. Several other countries, including Canada, Australia, and Japan, are developing organic programs. The International Federation of Agriculture Movements, based in Germany, is facilitating development of standards worldwide. *[Cathy Greene (202) 219-0886]* AO

May Releases from USDA's Agricultural Statistics Board

The following reports are issued at 3 p.m. Eastern time on the dates shown.

May

1 Catfish Production
Poultry - Production & Value
Cattle & Calf Predator Loss
4 Dairy Products
Dairy Products - Annual
Egg Products
6 Poultry Slaughter
7 Celery (1 p.m. report)
8 Vegetables
11 Crop Production
13 Milk - Prod. Disp. & Income
Potato Stocks
Turkey Hatchery
15 Milk Production
19 Farm Labor
21 Catfish
22 Cattle on Feed
Cold Storage
Eggs, Chickens & Turkeys
Livestock Slaughter
28 Peanut Stocks & Processing
29 Agricultural Prices
Cotton Ginnings

Cigarette Market Is Changing

During the last 5 years, U.S. domestic cigarette consumption has declined 13 percent. Still, production rose 6 percent to supply an expanding export market. Since 1986, U.S. cigarette exports have risen 180 percent, from 64 billion to 179 billion cigarettes in 1991. Value of cigarette shipments rose even more, from $1.3 billion to $4.2 billion, up 220 percent.

A key reason for the decline in domestic cigarette consumption is the substantial increase in retail prices, averaging 12.5 percent annually during the last 5 years. In addition to higher prices are health concerns, continued and heightened antismoking activity, escalating restrictions of smoking areas, and declining social acceptance of cigarette smoking.

The price increases stem from manufacturers' attempts to cover increasing operation costs and to provide capital for diversification into other industries. Cigarette retail prices have risen more than 2.5 times faster than the index of all consumer items. Excise tax hikes also boosted prices.

The price factor, besides pushing down consumption, has altered the domestic market. With cigarette prices averaging over $1.80 per pack, the incentive to shift from standard brands has intensified, particularly among lower income smokers. Generic and "value-priced" cigarettes (generally discontinued brands brought back onto the market) have gained an increasing share of the U.S. cigarette market—rising from 9 percent of the market in 1986 to 25 percent in 1991. Retail prices of generic and value-priced cigarettes are 15-50 percent less than standard brands, whose prices have nearly doubled during the last 5 years.

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Smoking Restrictions On the Rise

Regulations affecting smoking are actually not a new phenomenon. Between 1895 and 1921, 14 states passed laws prohibiting the sale of cigarettes, although by 1927, all of those laws had been repealed.

A proliferation of smoking restrictions followed the 1972 U.S. Surgeon General's report on the "passive" dangers to nonsmokers of breathing cigarette smoke. Until 1973, cigarettes, cigars, and pipes could be smoked almost everywhere. That year, Arizona and Oregon enacted the first smoking prohibition laws. Today, 46 states and the District of Columbia either restrict smoking or segregate smokers and nonsmokers.

In 18 states, smoking is regulated in workplaces—both public and private—and an additional 17 states regulate smoking in public workplaces. The U.S. General Services Administration (GSA) has implemented stringent smoking restrictions in buildings it owns and leases.

On the local level, the number and stringency of ordinances against smoking increased after the 1986 Surgeon General's report "The Health Consequences of Involuntary Smoking" was released. Among the report's conclusions:

- "Involuntary smoking is a cause of disease, including lung cancer, in healthy nonsmokers;"
- "Children of smoking parents have an increased frequency of respiratory infections, increased respiratory symptoms, and slightly smaller rates of increase in lung function as the lung matures;"
- "Simple separation of smokers and nonsmokers within the same air space may reduce, but does not eliminate, exposure of nonsmokers to environmental smoke."

Local ordinances restricting smoking are increasing and becoming more stringent. In a growing number of workplaces and other public facilities, smoking is completely banned.

Bills to restrict smoking aboard aircraft, buses, and trains were introduced in the late 1960's, but received little attention. By the late 1970's the Interstate Commerce Commission (ICC) began to regulate smoking on buses. The initial restraint permitted smoking of cigars, cigarettes, or pipes only in rear sections (not to exceed 20 percent of capacity) of interstate passenger buses. The smoking section was enlarged to 30 percent in late 1976 following surveys of bus passengers. Then, in late 1990, the ICC banned smoking on all regularly scheduled interstate buses in the U.S. Bus companies retained the option to permit smoking on privately chartered routes.

The Civil Aeronautics Board (CAB) began to regulate smoking on aircraft in mid-1973. Domestic airlines were required to provide designated "no smoking" areas aboard aircraft. Pipe and cigar smoking were banned altogether beginning in the early 1980's. In April 1988, all smoking on commercial U.S. airline flights of 2 hours or less was banned for the next 2 years. In February 1990, the ban was extended permanently to all commercial flights of 6 hours or less, which effectively eliminated smoking on airline flights within the 48 contiguous states.

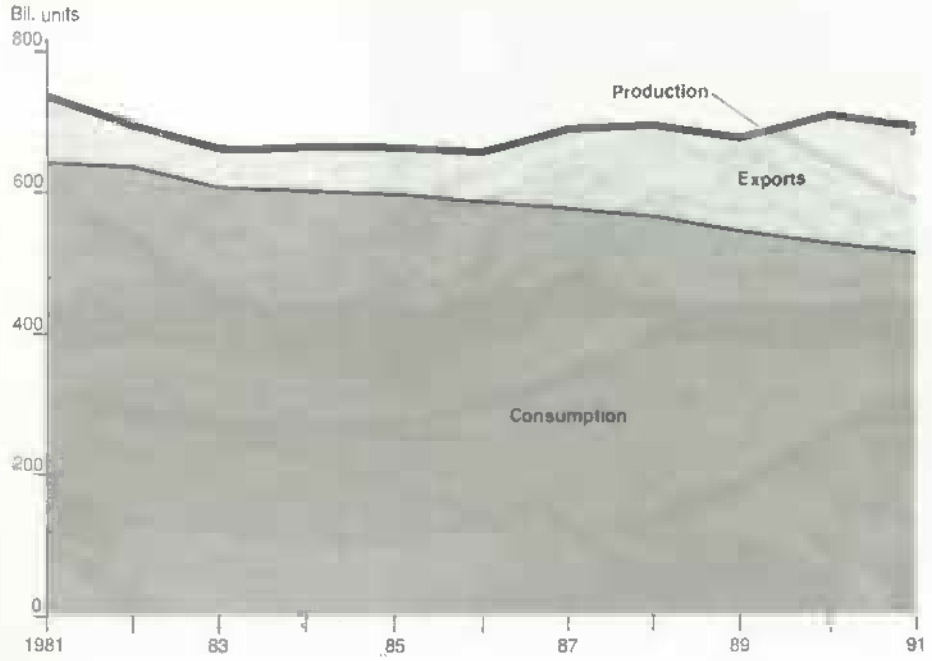
Based on the most recent Gallup poll on smoking (July 1990), "antismoking" sentiment in the U.S. is growing. Almost 3 out of 10 non-smokers said they would be less likely to hire someone if they knew that the person smoked; nearly 6 out of 10 said they would ask a person not to smoke in their home or at their table while dining. Overall support for restrictions on smoking in public places is on the rise.

The combination of price hikes, restrictions, health concerns, and social attitudes have reduced U.S. cigarette consumption about 20 percent over the last decade. The rate of decline could exceed 3 percent a year over the next several years.

Exports Offset Domestic Decline

In 4 of the 5 years between 1980 and 1984, U.S. tobacco production averaged 1.8 billion pounds. But total disappear-

U.S. Cigarette Exports Offset Fall In Domestic Consumption Since 1986



ance (domestic use plus exports) reached only 1.67 billion pounds. Surpluses mounted, and the assessments producers paid to support the program were boosted sharply to assure that the tobacco price support program operates without cost to taxpayers. Production declined in 1985 but was not much below use, so the industry continued to face large surpluses.

With excess tobacco supplies came an urgent need recognized by growers and buyers alike to change the tobacco program to remove excess supplies and make the U.S. more competitive in world markets. Legislation was enacted in early 1986 that changed the quota-setting procedure to a more market-oriented approach, lowered price support levels, and set up a procedure for cigarette manufacturers to purchase excess loan stocks. The result was substantially reduced assessments, shared by both growers and buyers.

Production quotas were lowered significantly in 1986, holding output about 400 million pounds below disappearance. Since 1986, production has increased to be about in line with use. Excess supplies have largely been drawn down.

Since 1986, increases in cigarette exports more than offset the reduction in domestic consumption. U.S. tobacco production rose 43 percent between 1986 and 1991 from 1.16 to 1.66 billion pounds. Part of the rise in leaf production resulted from the 6-percent-higher U.S. cigarette production needed to satisfy a growing export market.

However, U.S. tobacco production will likely begin declining within the next 2 years. Domestic cigarette consumption declines of 3 to 4 percent a year are likely to more than offset rising cigarette and leaf exports, and result in decreasing leaf use. Although cigarette exports are expected to continue to advance, the gain has slowed to less than 10 percent a year.

The big jump in U.S. cigarette exports over the past 5 years was primarily the result of reduced barriers to cigarette imports in Turkey and several Far Eastern markets—Japan, Taiwan, and South Korea. Other exporters are also shipping more cigarettes to these countries, but U.S. manufacturers are gaining most because of the popularity of American-blend cigarettes.

Japan's cigarette imports have risen nearly sixfold since 1986 and now constitute about 17 percent of the Japanese domestic market. U.S. cigarette manufactacturers supply about 95 percent of Japan's cigarette imports. In 1991, U.S. sales to Japan accounted for 30 percent of all U.S. cigarette exports.

The increase in imports by Japan is primarily the result of a Section 301 case brought by the U.S. against Japan. Under Section 301 of the Trade Act of 1974, the President can authorize retaliatory trade measures against countries with trade practices that are detrimental to U.S. industries. Resulting Japanese legislation relaxed fixed pricing restrictions, distribution impediments, and import tariffs. U.S. manufacturers have also reduced prices to compete with foreign-produced cigarettes.

In Taiwan, increased consumption of imported cigarettes, largely from the U.S., is attributed to successful marketing strategies and a bilateral trading agreement which reduced import barriers, together with the high quality of U.S. cigarettes compared with domestic brands. Taiwan's domestic tobacco monopoly has countered by improving the quality of its own product by importing more tobacco from the U.S.

Sales of cigarettes to South Korea were liberalized in mid-1988, when that country reduced taxes on imports by 58 percent. In addition, U.S. manufacturers are now permitted to advertise and market their brands at all retail outlets where Korean cigarettes are sold. In the past, sales of U.S. cigarettes in South Korea were severely restricted because of an outright sales ban (abolished in 1986), discriminatory taxes, quotas, high tariffs, and advertising and distribution impediments.

Removal of barriers has resulted in a surge in shipments of cigarettes to Turkey and the former Soviet Union. In 1991, Turkey imported about 10 billion cigarettes and became the fourth-largest cigarette importer, behind Japan, Belgium-Luxembourg (largely for trans-shipment to other European countries), and Hong Kong. Before 1990, when Soviet state trading companies started importing to ease domestic shortages, virtually no U.S. cigarettes were shipped to the Soviet Union. In 1991, the volume was 4.6 billion.

Tobacco Trade Sparks Criticism

As a result of growing exports, the U.S. tobacco and tobacco product trade surplus has grown from $2 billion to over $5 billion during the last 5 years. However, the trade gains have been criticized by both antismoking groups inside the U.S. and by some members of Congress.

Two bills dealing with cigarette exports were introduced in Congress in 1991. The "Cigarette Export Labeling Act" (H.R. 2779) would subject cigarette exports and advertising of cigarettes abroad to the same restrictions as those in the U.S. The "Cigarette Export Reform Act" (H.R. 2781) would prohibit the U.S. from negotiating with another country to remove trade barriers to the sale, distribution, manufacture, advertising, or packaging of cigarettes and small cigars.

Because of the controversy over cigarette exports, some major U.S. manufacturers announced plans to provide standard U.S. health warnings with cigarettes sold abroad whether required by law or not.

The Asia Pacific Association for the control of tobacco (located in Taipei, Taiwan) recently ran prominent advertisements in major U.S. newspapers, denouncing U.S. cigarette advertising in Taiwan. The ad contends that U.S. manufacturers' promotion policies are causing cigarette consumption to increase 4 percent a year in Taiwan. The association asserts that U.S. tobacco companies are eroding America's image in Taiwan, and is seeking a ban on cigarette advertising.

In addition, policies and programs to discourage tobacco use have been implemented in many developed countries that have historically been major U.S. tobacco markets. A number of countries

Commodity Spotlight

tax tobacco products heavily, control advertising, and restrict smoking areas.

Efforts to discourage smoking appear to be intensifying. The Parliament of the European Community (EC) recently voted to ban tobacco advertising in magazines, newspapers, and on billboards. The proposal would also ban tobacco sponsorships, leaving tobacco advertising legal only at the point of sale. The EC's 12 health ministers are scheduled to meet in May to develop a compromise proposal to satisfy all countries that would be affected.

The European Single Market Program (EC-92) contains three additional proposed directives on tobacco—one to reduce the allowable tar and nicotine levels in tobacco smoke, another to change tobacco labelling requirements and ban oral snuff, and a third directive to harmonize EC tobacco tax laws. These could have a negative effect on shipments of U.S. tobacco to the European Community.

Declining U.S. cigarette consumption and reductions in consumption in many traditional markets are limiting demand for U.S.-grown leaf. However, the expanding market for American-blend cigarettes that contain the high-quality tobacco grown in the U.S. is at least partially countering the declines in consumption. *[Verner Grise (202) 219-0890]* AO

Upcoming Reports from USDA's Economic Research Service

The following are May release dates for summaries of the ERS reports listed. Summaries are issued at 3 p.m. Eastern time.

May

14 USSR
15 Livestock & Poultry
19 Agricultural Outlook
20 Wheat
22 Feed
27 Cotton & Wool
28 Agricultural Income & Finance
29 Exports
Food Review

World Agriculture & Trade

Exports Rebound in Fiscal 1992

U.S. agricultural exports are expected to rebound in fiscal 1992, climbing $2.5 billion to $40 billion, based on the February 27 forecast, the most recent. The U.S. will likely capture a larger share of world trade in wheat and soybean products, and high-value product (HVP) exports are expected to reach a record.

Wheat is likely to account for much of 1992's export gain, as fiscal year shipments are forecast to rise from 27 to 33 million tons. Combined with higher prices, the rise in volume is expected to boost the value of U.S. wheat and flour exports $1.2 billion, to $4.3 billion. A record level of world trade during the 1991/92 marketing year is one factor behind the increase in U.S. exports, but reduced wheat crops and low exports by key Southern Hemisphere wheat exporters are helping the U.S. increase its share of world trade for the first time in 4 years.

Sales Increased to Former Soviet Union

Much of the upturn in both world trade and U.S. exports is due to imports by the former Soviet Union. During fiscal 1991, by contrast, U.S. exports of wheat and most other products to the Soviet Union fell following the Soviets' near-record 1990 grain crop and growing payment difficulties. As a result, the value of U.S. agricultural exports to the USSR fell $1.2 billion last year, to $1.8 billion, with U.S. wheat exports to the Soviets dropping below 2.5 million tons.

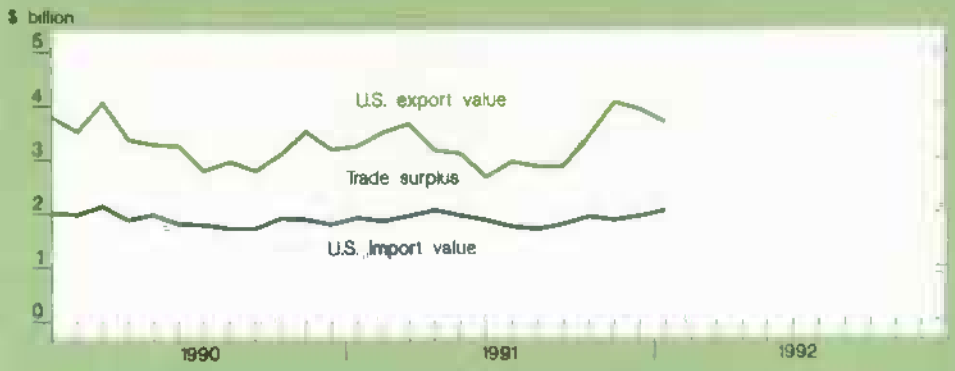
Since then, a number of factors have raised Soviet demand for agricultural imports, primarily the sharp drop in agricultural production and lower procurements after the breakup of the USSR's central government. The 1991 Soviet grain crop is estimated to have been 10 percent below its 1986-89 average. Output of vegetable oil in the first 9 months of 1991 was down 9 percent. During the same period the socialized sector's meat (including poultry) and milk output were down about 10 percent, and egg output down 4 percent.

While a reduced wheat crop is expected to result in the second-highest level of global wheat imports by the former Soviet Republics during the 1991/92 wheat marketing year, depleted foreign exchange reserves mean the purchases will rely on credit, assistance, or barter. Therefore, the level of U.S. agricultural exports to the former USSR in 1992 will be largely determined by the amount of U.S. government export credit guarantees and aid. As of mid-April, more than $4 billion in credit guarantees and aid had been announced for fiscal 1991 and 1992 (October 1990-September 1992).

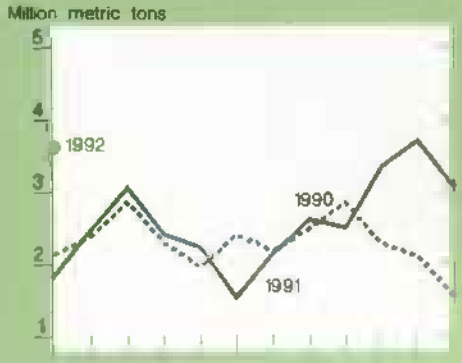
For fiscal 1991, GSM-102 credit guarantees amounting to $1.5 billion covered more than 80 percent of U.S. agricultural exports to the USSR. Commodities sold without the credits were primarily corn and soybean meal exports during October to December 1990. If the only shipments to the former USSR until October 1992 are sold under remaining credit guarantees and aid allocated by the end of March, U.S. exports there would

U.S. Trade Indicators

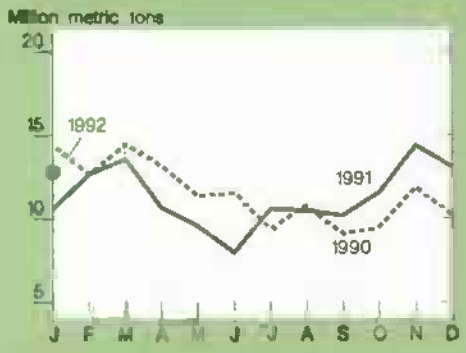
U.S. agricultural trade balance



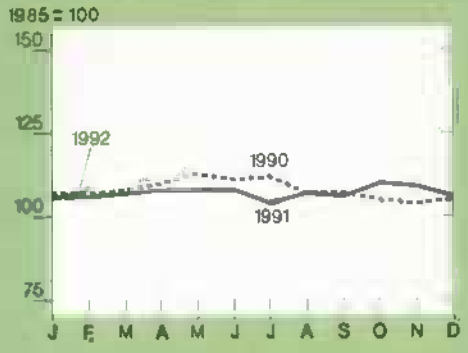
U.S. wheat exports



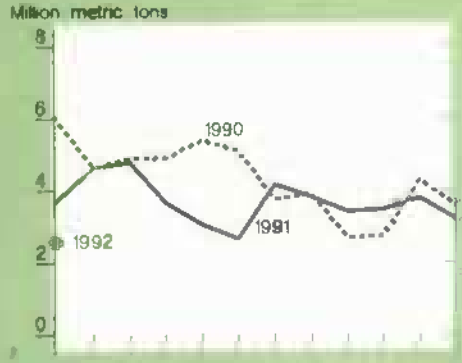
Export volume



Index of export prices

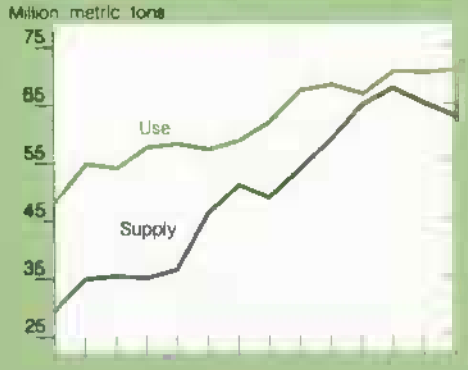


U.S. corn exports

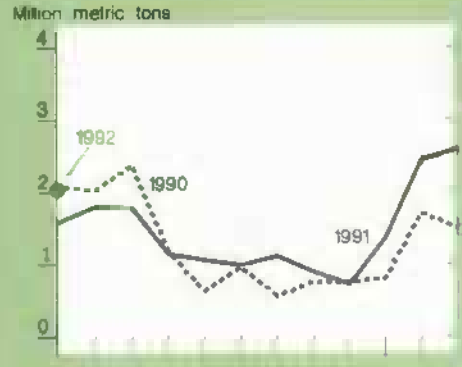


Foreign supply & use of coarse grains

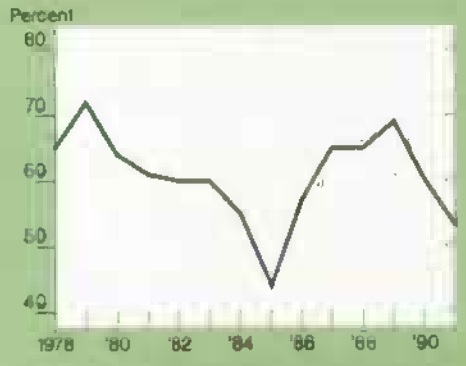
Foreign supply & use of soybeans



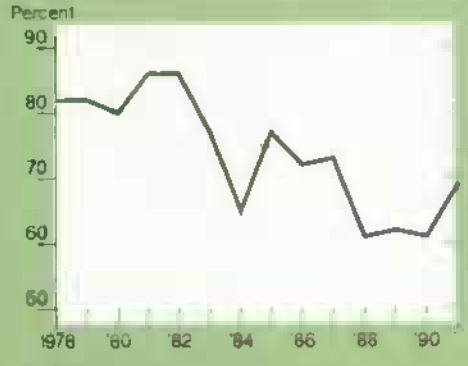
U.S. soybean exports



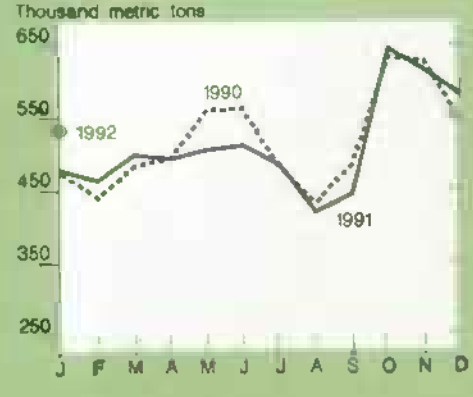
U.S. share of world coarse grains exports[1,2]



U.S. share of world soybean exports[1,2]



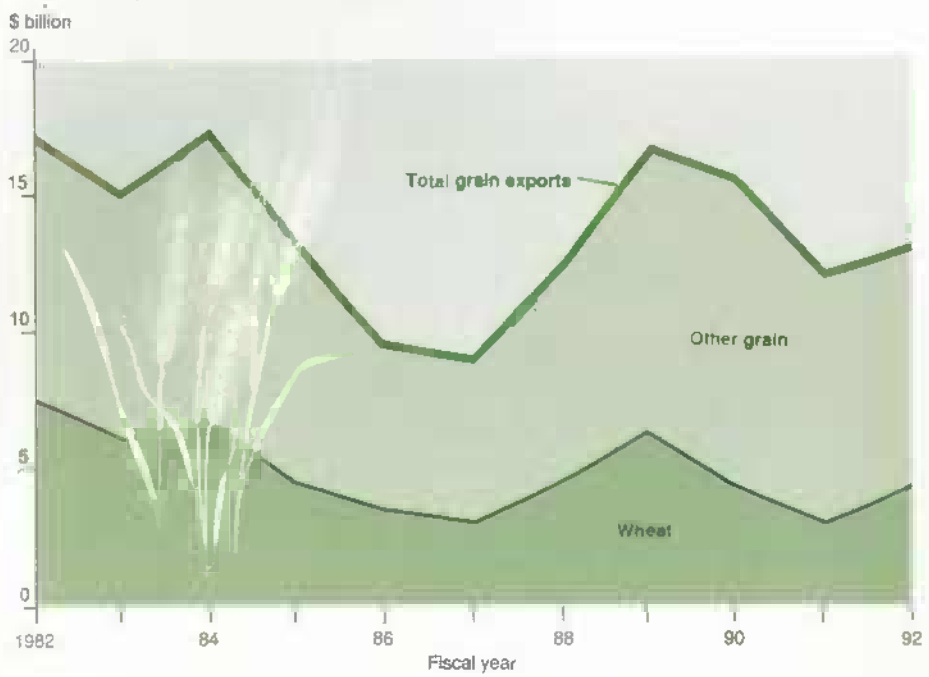
U.S. fruit, nut & vegetable exports[3]



[1]Excluding intra-EC trade. [2]October-September years [3]Includes fruit juices

World Agriculture & Trade

Higher Wheat Sales Boost U.S. Grain Export Revenue in 1992



1992 forecast.

approach $2.5 billion in fiscal 1992. Since the beginning of April, an additional $600 million in credit guarantees have been announced, and another $500 million are possible as additional republics meet program qualifications.

In addition to wheat, U.S. exports of soybeans and products to the former Soviet Union could rise during fiscal 1992. But much of the nearly $1-billion gain expected in U.S. exports of oilseeds and products is in other markets. U.S. exports are expected to rise for soybeans, soybean meal, and soybean oil in fiscal 1992 as the volume of soybean world trade, including oils and meal, rises. The U.S. share should increase to its largest in 4 years.

As the volume of U.S. oilseed and product exports rises about 4 million tons, the value is expected to rise $900 million. Much of the gain is attributed to drought-reduced production in Brazil, the largest U.S. competitor. Brazil's soybean production fell from over 20 million tons to 15.5 million last year, and Argentina's slight gain fell far short of making up the loss.

U.S. Share of Coarse Grain Trade Shrinks

In contrast to wheat and soybean products, lower U.S. corn exports and a loss in market share are expected in fiscal 1992. Corn will probably remain the largest single export at $4.5 billion, but despite higher prices, a $300-million drop in export value is forecast in fiscal 1992. Reduced imports by Mexico and increased exports by China and Argentina will leave the U.S. with a smaller share of world corn trade, the second decline in 2 years.

Since fiscal 1990, the U.S. share of world coarse grain trade has slid from one of its highest to one of the lowest. As with wheat, the level of exports to the former Soviet Union accounted for much of the shift. During fiscal 1989 and 1990, U.S. coarse grain shipments to the USSR exceeded 16 million tons, putting the U.S. share of world trade over 60 percent for the second time ever. At 62 percent, 1990's U.S. share of world trade was exceeded only by fiscal 1980's 67 percent.

During fiscal 1992, the volume of U.S. coarse grain exports is expected to drop more than 5 million tons and the U.S. share of world trade is forecast to reach only 46 percent. Excluding fiscal 1986, the last time the U.S. share of world coarse grain trade fell below this level was during the 1971/72 marketing year. In 1986, the U.S. share was a low 38 percent, as Soviet production rose and world markets awaited the U.S. transition to market-oriented pricing under the 1985 Food Security Act.

In 1992, as in 1986, the loss in U.S. coarse grain exports and market share coincides with a loss in sales to the Soviet Union. From fiscal 1990's record 16.4 million tons, shipments of U.S. coarse grains to the USSR fell to 9.1 million tons in fiscal 1991 and continued falling during the first half of fiscal 1992.

Coarse grain consumption in the former Soviet Union is expected to fall nearly 20 million tons this year largely due to lower supplies and reduced livestock numbers. Soviet buying has emphasized wheat, rather than animal feeds. This could affect U.S. exports in the longer run if animal numbers decline in the former Soviet Union.

HVP Exports Again Surpass Bulk

At a record $21.5 billion, exports of high-value products in 1992 will exceed bulk exports for the second straight year and the second time since World War II. HVP's are generally those that receive additional handling or processing beyond the farm gate (e.g., vegetables, flour). Although bulk exports overall could rise $1.3 billion thanks to higher wheat and soybean sales, shipments of cotton and tobacco as well as corn and coarse grains are expected to lose ground in 1992. The rise in HVP exports—$1.1 billion—is expected to maintain HVP's lead over bulk exports.

Horticultural exports are expected to account for more than half the gain in HVP exports. Exports of fruits, nuts, and vegetables are together forecast to post one of the largest export gains in 1992, growing from $6 billion to $6.6 billion.

World Agriculture & Trade

The largest market for U.S. horticultural exports is Canada, totaling nearly $2 billion in fiscal 1991. Relatively favorable exchange rates are expected to continue encouraging U.S. exports to Canada, and progressive tariff reductions under the U.S.-Canada Free Trade Agreement will also support the rise in exports. The continued decline in the number of Canadian processors packing canned fruits and vegetables will boost U.S. exports, provided the costs of size and labeling requirements do not become prohibitive. Currently, working groups established under the FTA are attempting to harmonize the restrictions on can size.

Meat & Dairy Exports Higher in 1992

Other increasing high-value exports include soybean meal and soybean oil—expected to rise about $300 million—and poultry products, which are likely to rise about $100 million with expanded exports to Japan, Hong Kong, and Mexico. Dairy product exports are also expected to increase with higher shipments under the Dairy Export Incentive Program, and Commodity Credit Corporation direct sales. During all of fiscal 1991, only 17,000 tons of U.S. nonfat dry milk were exported, but during the first 4 months of fiscal 1992 nearly 39,000 tons were shipped, more than half to Mexico.

Meat exports also continue to rise during fiscal 1992, climbing $100 million during the first 4 months of fiscal 1992. Again, much of the advance was in exports to Mexico, where a liberalized import regime and strong economic growth increased purchasing power. Mexico's GDP expanded at a 4.3-percent rate in 1991, and similar growth is expected during 1992.

Higher meat exports to South Korea and Japan are also likely as these countries continue liberalizing imports. Korea's beef imports are scheduled to increase under the U.S.-Korea Beef Agreement of April 1990, which set a minimum import quota of 132,000 tons for 1992. Korea's beef imports from the U.S. skyrocketed from 2,000 tons in 1987/88 to 42,000 tons in 1990/91. Increases in minimum beef imports for 1993 through 1997 depend on subsequent negotiations, which are set to convene before July 1992.

U.S. beef and veal exports to Japan in fiscal 1992 are forecast to increase moderately, after declining to 177,000 tons in 1991. Japan's beef imports from all sources are expected to rise this year as Japan's large beef stocks contract and its 70-percent import tariff is lowered to 60 percent as of April 1.

However, weak global economic growth will continue to hamper U.S. exports of hides and skins, which fell $387 million to $1.5 billion in fiscal 1991. Exports are expected to continue weakening in 1992, as slower global economic growth cuts demand for leather and fur products.

Weaker growth overseas could curb gains in other U.S. HVP exports. While global economic growth is expected to increase in 1992, slow growth is forecast for Germany and Japan. Germany is the world's largest HVP importer, and Japan was the largest source of gain for U.S. HVP exports in recent years. The U.S. share of world HVP trade probably remained fairly constant at around 8 percent after 1988, as the foreign exchange value of the dollar largely stabilized, making growth in global HVP trade more important to sustaining U.S. export growth. *[Stephen MacDonald (202) 219-0822]* AO

Resources

Ag-Chem Equipment

Pesticides: Balancing Risks, Benefits

The risks and benefits of pesticide use are adding to the public policy debate over the compatibility of economic growth and prosperity with environmental quality. Among the current issues are control over local pesticide use, minor crop use and reregistration, and the potential "circle of poison."

Concern over pesticide use is not new. First raised seriously in the 1960's, apprehension over the unintended effects of pesticides have intensified through the past two decades. Concerns include accidental human poisonings, cumulative pest resistance, food safety, water quality, worker safety, species endangerment, and other adverse ecological consequences.

The difficulty in balancing the hazards and benefits of pesticides is illustrated by two current issues: One is minor-use pesticides and the problems associated with their reregistration. The second is the "circle of poison" describing exports of unregistered pesticides that return to the U.S. as unacceptable levels of residues on imported foods.

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Minor use refers to pesticides applied primarily by fruit and vegetable growers, but could also refer to small, isolated, localized, or specific uses of pesticides on major field crops. Although fruit, nut, and vegetable production is no small subsector in U.S. agriculture—cash receipts totaled more than $20 billion in 1991—acreage and pesticide use pales in comparison with field crops like corn, wheat, and soybeans. Lettuce, carrots, celery, strawberries, and apples are grown on about 1 million acres, but over 200 million acres are devoted to corn, soybeans, and wheat.

Altogether, about 8 million acres produce the nation's fruits, nuts, and vegetables. Of the reported $4.5 billion of pesticides shipped for use on U.S. crops in 1990, about 15 percent was for fruit and vegetable growers; over half was used for corn and soybeans.

R&D Geared to Major Field Crops

For thousands of individual registrations of pesticides used on fruits and vegetables, the annual revenue to the manufacturer is measured in thousands, not millions, of dollars. But when it can cost a producer $40 to $50 million to develop, test, register, produce, and market a new active ingredient, agricultural chemical companies logically direct their research toward potential use and returns on large-acreage crops, not the relatively small-area fruits and vegetables. Lack of market incentives, fear of liability, and increased costs to register pesticide uses have resulted in the voluntary withdrawal of several low-volume products used by fruit, vegetable, and other specialty crop producers.

Costs associated with manufacture and registration have escalated in part because of changes mandated by Congress to assure that previously registered pesticides meet higher standards of safety to human health and the environment. In 1972, Congress mandated the reregistration of all pesticide products—an undertaking that proved so enormous that 16 years later, further legislation was passed to accelerate the reregistration process.

Since the accelerated reregistration program began, the number of registered products has dropped from about 45,000 to less than 20,000; most of those dropped were no longer in use. An estimated 1,000 minor-use registrations will not be sought by registrants. In response, strategies have been devised to develop data on health and environmental effects to retain registration for high-priority uses. In some cases, fees and some data requirements have been waived. In other cases, data are accepted for groups of crops, with tolerances established for the entire crop group based on data from two or more representative crops.

Early notification programs have been established to keep grower organizations and other interested parties informed about pesticide uses that manufacturers do not intend to submit for reregistration. Although these efforts will help ease the burden on growers relying on minor-use pesticides, production could be disrupted by the dropping of registrations.

Minor Use Loss May Mean Major Problems

Growers of many fruit and vegetable crops rely on fewer and fewer pesticides to protect their crops. But with dependence on one or a few pesticides, the potential for pest resistance becomes more likely, and the impact of a regulatory decision dealing with a single pesticide is magnified.

The reregistration process has disrupted several successful integrated pest management (IPM) programs. For more than a decade, growers have been encouraged to adopt IPM methods that combine biological and cultural pest controls with synthetic chemicals to create effective pest management programs with fewer pesticide applications. The chemicals that fit best into IPM programs narrowly control a key pest, while limiting disruption of biological systems that continue to suppress outbreaks of other pests.

A walnut IPM program, for example, developed by the University of California no longer exists because the insecticide phosalone was dropped. And apple growers who relied on the discontinued insecticide phosphamidon to control aphids will now return to using miticides, because the alternative chemicals will also kill predators that control mites.

Pesticide Exports Retreat from 1988 Peak

Sources: USDA, FATUS Calendar Year Supplement; FATUS Jan./Feb.

Growers Take The Initiative

Some fruit and vegetable growers have adopted mechanical options—such as increased hand labor for weeding—to fill the void created by the loss of effective pesticides. Research is also being directed to breed plant cultivars with natural resistance to pests. With priority given to research into nonchemical alternatives, there are likely to be more effective nonchemical alternatives in the future.

In the meantime, most nonpesticidal means of pest control are likely to be more expensive than the pesticides they replace, because more time and management are involved. Some growers are developing new avenues to obtain registration of minor uses.

The U.S. Hops Industry Plant Protection Committee is an example. Hops fall into the category of minor-use crops for which the expense of registering a pesticide is not usually justified based on potential revenue. Seven minor uses for hops are being canceled as a result of reregistration. So the state-based hops grower organizations formed a committee to ensure that growers have access to registered pesticides. The committee met with EPA to determine the requirements for registration and gained approval of the chemical manufacturers to label their compounds for use on hops. Funds were obtained through assessments on growers and breweries to conduct the required tests.

Cost is not always the problem. Rather, fear of liability for crop damage prevents manufacturers from registering new uses for pesticides. The New York State Vegetable Growers Association addressed the problem by developing a system of third-party registration for the use of metolachlor on cabbage. The officers of the growers' association sign a release which transfers liability to the organization, and growers must sign a waiver with the association to use the herbicide legally.

Pesticide Trade & A "Circle of Poison"

Concern has been raised that canceled and suspended pesticide registrations may affect U.S. export sales of fruits, vegetables, and specialty crops. The U.S. exported about $6 billion in fruits and vegetables in 1991. Some farmers have raised concerns that foreign growers may gain a competitive edge over the U.S. if they can use low-cost effective chemicals that are no longer available to U.S. growers. The fact that many U.S. canceled or suspended pesticides are produced elsewhere undermines the effectiveness of a unilateral export ban— by the U.S. or by any other country—on worldwide pesticide production and use.

The U.S. is also a major market for imported produce. About 25 percent of the fruits and vegetables consumed in the U.S. are imported. Exporters to the U.S. will be unable to use pesticides that are no longer registered in this country if they leave detectable residues. But not all pesticides leave detectable residues.

The implications point to a second related issue in pesticide use, known as the circle of poison (COP). The term refers to the link between U.S. export of pesticides and the subsequent import of food containing above-tolerance residues of these pesticides. While U.S. growers face the loss of some pesticides no longer considered profitable to register for minor use, other unregistered pesticides that are legally exported may be used on food products consumed in foreign countries or imported by the U.S. Some pesticides voluntarily dropped in the U.S. will continue to be produced and used in other countries.

Thus far, the only known instance of a circle of poison was the one-time discovery of residues of chlordane and heptachlor on imported beef. The sole producer and exporter of these two pesticides is located in the U.S.

The situation causes anxiety to U.S. consumers and producers alike. On the one hand, the residues on imported food may go undetected because of budgetary and technological constraints. At the same time, many U.S. producers consider themselves at a disadvantage since they cannot use the pesticides, even though they are available for production in other countries.

Federal legislation was introduced in 1991 to ban the export of all pesticide products not registered for use in the U.S. unless EPA specifies an acceptable tolerance level for residues on imported foods. Currently, U.S. exports comprise approximately one-fifth of total world pesticide exports. Proposed COP legislation is concerned with a subset of pesticide exports—those not registered for use in the U.S. Some unregistered pesticides have never been registered in the U.S., while some were used at one time and have since been canceled or suspended, and still fewer are used in research and development.

Proponents of an export ban argue that the U.S. has a moral obligation to warn and, when possible, protect foreign farmworkers and foreign consumers from potentially dangerous pesticides. For example, DBCP is a soil fumigant which is simple to apply and very effective against nematodes. It was found to cause sterility in male workers involved in its manufacture. For that reason DBCP was removed from the market and all U.S. registrations were canceled. The incident in Costa Rica, where as many as 2,000 banana workers may have been sterilized from exposure to DBCP, is an example of how a U.S. export ban may have protected foreign farmworkers.

Although information on precise pesticide production is often proprietary, pesticide trade publications do provide limited information on one subclass of unregistered pesticides: those pesticides canceled or suspended for use in the U.S. Of the 42 pesticides EPA has canceled or suspended for all or nearly all uses, information on the production location of 23 was available. Of these 23 chemicals, 3 were produced solely in the U.S., 16 produced solely outside the U.S., and 4 both in the U.S. and foreign countries.

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Testing for Pesticide Residues

Technological and budgetary constraints limit current pesticide residue testing. While many pesticides are detectable by the most commonly used residue testing techniques, others are detectable only by techniques that are specialized, time-consuming, and expensive. Methods routinely used by FDA can detect only 163 out of 316 pesticides with established tolerances, plus some pesticides with temporary tolerances, and some with no established tolerances.

USDA's inspection of imported meats and the pesticide residue sampling program used by the Food and Drug Administration (FDA) to inspect imported fruits and vegetables, have generally found residues within EPA tolerances.

Less than 2 percent of all shipments of fruits and vegetables imported into the U.S. are sampled. In 1990, of 10,267 samples of fruit and vegetable imports taken by FDA, 64 percent showed detectable residues, and less than 1 percent showed residues greater than tolerance. Some 4 percent had residues of pesticides for which no tolerances are determined for the particular pesticide-commodity combination.

To help minimize pesticide residues in food destined for U.S. markets, FDA uses a commercial agrichemical data base that estimates pesticide use in various countries. Though incomplete, the data base helps select the product-pesticide combinations to target for testing. When a food shipment is found to contain illegal pesticide residues, FDA can invoke automatic detention of future shipments of that product from the exporter country for an indefinite period.

Under automatic detention, U.S. importers are responsible for having each shipment of the commodity in question analyzed and certified by a private laboratory. Shipments found to be within tolerance levels are allowed through customs and those above tolerance are denied access to U.S. markets. Over 3,500 shipments were detained in fiscal 1988 under automatic detention, and over 5,400 in fiscal 1989.

Costs associated with these procedures can be considerable. A routine multiple residue test, for example, costs between $200 and $300 per shipment. These costs can escalate if FDA suspects pesticide residues that are not detected by conventional tests. Furthermore, a given food market can virtually "dry up" overnight if even a small threat of potentially dangerous residue is made public, as occurred when cyanide residues were found on Chilean grapes.

Generally, U.S.-canceled or -suspended pesticides can be detected relatively easily since residue testing technology is well developed for these products. But the monitoring system currently used in the U.S. has more difficulty detecting residues of pesticides never registered in this country.

The PDP Initiative

In response to public concerns over food safety in general, and FDA sampling procedures in particular, USDA launched the Pesticide Data Program (PDP) in 1991. The PDP is a multi-agency initiative to collect and analyze pesticide use and residue data, beginning with fresh fruits and vegetables. PDP addresses four critical needs to:

- collect data on pesticide residues in selected commodities in trade, as close to the consumer level as possible;
- collect data on pesticide use in the production of fruits, vegetables, and other farm products;
- provide data on pesticide use and residue levels, together with food intake data, to EPA and FDA to support those agencies' regulatory actions;
- evaluate the benefits of alternative pesticide policies, programs, and practices.

Since PDP testing began in 1991, 22 percent of the samples taken have detectable pesticide residues, most well below tolerance levels.

The Cost of Ensuring Food Safety

A basic U.S. issue for registered pesticides is whether the government or the private sector should bear the costs of testing for residues of pesticides in imported foods. Currently, regulatory agencies (essentially, taxpayers) bear the cost. But budgets for the regulatory agencies are limited. As a result, residue testing in some cases has been limited to routine techniques that are incapable of detecting some pesticides not registered in the U.S.

In testing for violative residues in tobacco imports, the USDA uses a different approach. The law requires tobacco importers to pay for pesticide inspections, and any shipment not meeting residue requirements is denied entry. Similar inspection requirements are imposed on U.S.-grown tobacco processed in the U.S.

In theory, one possible approach for the pesticide trade is a per-unit export tax on U.S.-produced but unregistered pesticides, to fund increased import inspections for pesticide residues. Export taxes are prohibited by the Constitution. But if the ultimate goal is to provide increased testing for residues, while discouraging production from moving abroad, an export tax could take advantage of the startup costs associated with relocating production outside the U.S., thus discouraging profitable production elsewhere.

International cooperative efforts are in place to curb the trade of mutually recognized hazardous agrichemicals. A 1989 international agreement, known as Prior Informed Consent (PIC), requires prior approval by an importing country before a "banned or severely restricted pesticide" can be exported. This procedure allows each country to assess the risks associated with the pesticide.

Although several policy alternatives are being considered, the debate over pesticide manufacture, use, and trade is likely to continue. On the agenda are the dearth of information on global distribution of pesticide production and consumption; the controversy over what constitutes a safe food supply; the potential effect of U.S. environmental and health regulations on international trade; and the weight of ethical, rather than economic arguments to justify pesticide export controls. *[Leonard Gianessi, Cynthia Puffer (202) 328-5036, Stan Daberkow (202) 219-0464, Douglas Beach (202) 219-0451]* AO

Productivity Linkages In the Ag Economy

U.S. agriculture has an impressive record of productivity growth in the postwar period. From 1948 to 1989, multifactor productivity in U.S. agriculture posted an average annual growth rate of 1.83 percent. During the same period, the average annual rate of productivity growth in the nonfarm business sector was lower, at 1.12 percent.

Multifactor productivity is a proxy for the effect of technological developments. It measures changes in output that cannot be attributed to changes in the quantity of inputs such as land, chemicals, and machinery.

Productivity gains in the farm sector do not arise from agriculturally related technological advances alone. Some of the gains are results of innovation in other sectors of the economy. So the capacity of U.S. agriculture to furnish an abundant food supply at reasonable prices depends in part on positive external benefits from nonfarm sectors. And the value of research and development (R&D) in one sector should include possible benefits accruing to another sector—for example, a reduction in food production costs.

Productivity Growth Changes Over Time

Two distinct forces shape technological change. First is the generation of new knowledge, which in turn depends on R&D expenditures. The second is the pace at which innovation is adopted within a sector. Innovations are not applied immediately by all producers in an industry, but are influenced by factors like the costs of adoption and the attitudes toward risk.

Since the incidence of innovations as well as their rate of adoption is likely to vary across sectors, the rate of productivity growth is also likely to differ. At the same time, a productivity spurt in one sector of the economy is likely to affect productivity in other sectors—in a spillover effect. Suppose, for example, that a discovery in the machinery industry leads to production of a more fuel-efficient tractor. If agriculture adopts the new and more efficient tractor, productivity increases as a result of the spillover effect.

This article examines co-movement of productivity in agriculture and related sectors of the U.S. economy over the period 1949-86. The analysis confirms that productivity in nonfarm sectors spills over into the farm sector.

The related sectors chosen for investigation are food and kindred products, petroleum products, nonelectrical machinery, and agriculture. In relation to agriculture, the food and kindred products sector may be viewed as a "downstream" industry, which uses output from agriculture as an input in its production process. Petroleum and machinery are considered "upstream" industries, producing inputs used by agriculture. Together, these four sectors have strong linkages, and productivity shocks in one sector probably affect other sectors as well.

Productivity data for the related sectors were obtained from the Bureau of Labor Statistics (BLS). USDA analysts constructed multifactor productivity measures for the farm sector, which were comparable to the BLS approach.

Among the four sectors, agriculture exhibited the most dramatic growth in productivity over the 1949-86 period, although a rising trend in productivity

Agriculture Has Dominated Related Sectors In Productivity Growth

Machinery excludes electrical equipment.

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was evident in all four sectors. In some cases, the trend was gradual, while for others it was more pronounced. The smallest productivity growth occurred in the petroleum products industry. The average annual growth rates over the period were 0.67 percent in food and kindred products, 0.55 percent in petroleum products, 1.53 percent for machinery, and 1.91 percent in agriculture.

But productivity growth can also vary over time, and the 1949-86 period was divided into eight sub-periods corresponding to different phases of the business cycle. These were 1949-53, 1953-57, 1957-60, 1960-66, 1966-69, 1969-73, 1973-79, and 1979-86. Annual growth rates in multifactor productivity were then computed for all four sectors in each of these sub-periods.

U.S. agriculture experienced two big surges in productivity. These occurred in 1957-60 and 1969-73, when productivity growth exceeded an annual rate of 3 percent.

Productivity growth in the three related industries was also generally high in these periods. The 1973-79 period marked the so-called "productivity slowdown" in the economy, induced initially by an oil price shock. With a jump in oil prices, annual average agricultural productivity growth plummeted from an impressive postwar high of 3.44 percent (1969-73) to 0.21 percent (1973-79). For two sectors—food and kindred products, and petroleum—the annual growth rates were negative during the 1973-79 period. The average annual productivity growth rate for agriculture has since recovered, rising to 3.25 percent per year over the 1979-86 period.

Of course, some analysts have proposed that output measures from producing sectors should reflect environmental impacts—both positive and negative. In that case, for example, negative environmental effects arising from agricultural production would lower the estimated magnitude of agriculture's productivity growth. The productivity measure applied in this article, and other conventional measures, exclude environmental impacts.

Upstream Industries Exceed Downstream in Productivity Impact on Agriculture

	Upstream			Downstream
Period	Petroleum products	Nonelectrical machinery	Agriculture	Food products
	Percent change			
1	1.07	1.43	3.64	0.00
2	0.20	1.34	0.42	-0.46
3	0.14	0.49	-0.17	0.26
4	0.12	0.12	-0.05	0.16
5	0.06	0.04	0.01	0.04
6	0.02	0.02	0.01	0.01

Changes in agricultural productivity growth rate resulting from productivity shocks of one standard deviation in four different sectors. For example, if the long-run productivity growth rate for agriculture were 3 percent, a positive productivity shock in the petroleum products sector of one standard deviation would put agriculture's productivity growth at 4.07 percent at the end of the first period (3 + 1.07).

Does Growth Move Sector to Sector?

The hypothesis of co-movement assumes that productivity shocks from one sector, like machinery, can affect productivity in another sector, such as agriculture. Equally, a shock from agriculture could have an impact on the machinery sector. For example, development of new tomato varieties able to endure machine harvesting without damage, while retaining taste and appearance, could encourage innovation in harvesting and transportation equipment. Such innovation may boost productivity in the machinery industry.

A statistical tool called co-integration analysis helps identify stable long-term relationships within a set of variables. In this case, co-integration analysis can identify stable co-movement between multifactor productivity in the four sectors. If such a relationship is demonstrated, then a productivity shock in one sector would induce a temporary deviation from the stable co-movement with indices in other sectors. In the long run, however, the variables will move in tandem. Absence of a co-integration relationship, on the other hand, implies that productivity growth in one sector will be confined to that sector, and the indices of all sectors will move apart over time.

Application of the co-integration test demonstrated that productivity for the four sectors are interrelated, and that spillover effects provide a plausible explanation for the observed co-movement between productivity indices. This leads to the question of how much a productivity change in one sector affects the other sectors. Co-integration analysis can trace productivity adjustments in agriculture from a hypothetical shock induced in one of the other sectors. In an initial equilibrium, all four multifactor productivity indices are assumed able to grow at a constant rate. Suppose that a productivity shock occurs, originating from any of the four sectors.

Several interesting adjustment patterns were observed. First, a shock of one standard deviation in the productivity growth of any of the four sectors leads to a restoration of the original agricultural equilibrium growth rate in less than 5 years. Adjustment to a petroleum productivity shock is fastest, taking only 2 years. In contrast, agriculture adjusts more slowlly to technical shocks in the machinery sector. Differences in patterns of dynamic adjustment to shocks my be due to high capital costs of adopting new machines. For example, even when a better tractor is produced, a farmer may choose to continue using a less efficient and older tractor. On the other hand, a technological innovation in the petroleum industry may not involve significant capital costs in agriculture.

Second, a shock to agricultural productivity of one standard deviation has the largest initial impact, but a similar shock in the food and kindred products industry has the smallest initial impact.

Third, a shock of one standard deviation to the petroleum or machinery sector has a positive initial impact on agricultural productivity. But a productivity shock of one standard deviationin the downstream food and kindred products sector actually has a small negative impact on agriculture initially. Following this initial negative impact, however, agriculture's productivity rises.

These observations could have implications for social policy. For example, if a goal is to provide for the food and fiber needs of the population at reasonable prices, resources could be targeted to sectors that would have the strongest impact on agricultural productivity.

These results reinforce the notion that changes in the value of agricultural productivity can be traced to changes induced not only by advances in the agricultural sector itself but by developments in other sectors. This implies that the agricultural sector is a net beneficiary of R&D in both upstream and downstream sectors, although the impact of the downstream sector is less pronounced.

The U.S. food and fiber system is often praised for its ability to provide a stable food supply at reasonable prices. This analysis suggests that cost reductions in agriculture are partially attributable to positive developments originating in related sectors.

Emerging Technologies: The Engine of Growth

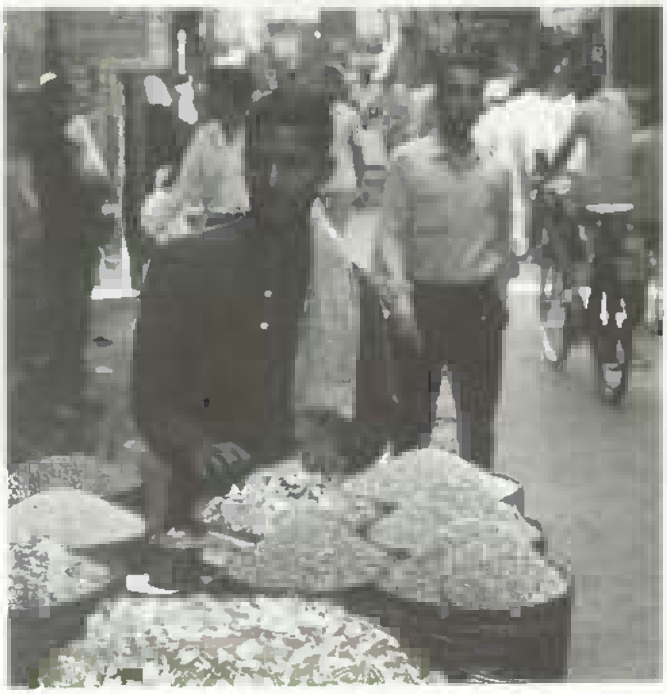
Efforts to document productivity growth in U.S. agriculture began as early as 1870. The period from 1870 until the early 1930's saw widespread use of animal traction and is called the era of "horsepower." A subsequent period of vigorous growth was fueled mainly by the adoption of "mechanical power." Mechanization of agriculture resulted in an average annual productivity growth of 1.3 percent over the 1930-50 period. Obviously, mechanical innovations from other sectors benefited the agricultural sector significantly during this period.

The post-1950 period was characterized by adoption of agricultural chemicals. Chemical fertilizers and pesticides combined with improved plant breeding practices expanded U.S. crop yields significantly. The situation was similar for livestock production, which benefited from improvements in livestock breeds as well as gains in livestock feeding efficiency. The post-1950 period is appropriately termed the era of "science power," as technological change followed the application of new scientific discoveries to agriculture.

Productivity advances in the future will likely result from the application of biotechnology. In crop and livestock production, genetic engineering holds significant promise through the development of disease- and pest-resistant plant varieties. The use of growth hormones in the livestock sector could improve efficiency of meat and livestock production. Experiments with growth hormones have shown output increases of 10-40 percent in dairy and hog production.

While biotechnology is likely to have a substantial influence on agricultural productivity, a second trend is the emergence of sustainable technologies. Sustainable production practices include those that curb soil erosion, protect water quality, and reduce reliance on chemical means of maintaining soil fertility and controlling insects, diseases, and weeds. These goals can be achieved through crop rotations, conservation tillage practices, and integrated pest management (IPM). The impact of sustainable practices on agricultural productivity will depend largely on the type of sustainable technology invented and adopted. *[Mark Denbaly (202) 219-0782, Utpal Vasavada, V. Eldon Ball (202) 219-0432]* AO

Special Articles



India Government Tourist Office

Sustainable Agriculture: What's It All About?

In the U.S. and other developed nations, concern is growing about agriculture's impact on the environment. Even in many developing economies, where increasing agricultural production has been a top priority, attention is turning to the environmental costs of feeding the population.

While the Green Revolution focused on the development of high-yielding varieties requiring large amounts of agrichemicals and water, emerging evidence suggests that the rate of gain in returns to the improvement of varieties may slow. A new approach to agriculture seems to be developing worldwide, and "sustainable agriculture" is the new catchphrase.

Together with the research community and government agencies, farmers are developing new practices and approaches that lessen the impact of agriculture on the environment while maintaining growers' income. Still, controversies abound on this topic, beginning with the definition of sustainable agriculture. Against this background, the following article canvases various concepts of sustainable agriculture. A forthcoming AO article will explore a variety of techniques proposed to implement a more sustainable agricultural system.

New Techniques or A New Way of Life?

The 1990 farm legislation defines sustainable agriculture as "...an integrated system of plant and animal production practices having a site-specific application that will, over the long term:

- satisfy human food and fiber needs;
- enhance environmental quality and the natural resource base upon which the agricultural economy depends;
- make the most efficient use of nonrenewable resources and on-farm resources and integrate, where appropriate, natural biological cycles and controls;
- sustain the economic viability of farm operations; and
- enhance the quality of life for farmers and society as a whole."

To some, sustainable agriculture means finding ways of farming that have less impact on the environment. To others, it represents a new philosophy and a way of life. The differences in definitions often turn on which goals are most important to emphasize, which methods to promote, and how policy and research should direct agricultural development.

At the root of sustainability is a concern about the ability to maintain the resource base while safely meeting the food and fiber needs of future generations at an acceptable environmental cost. The questions arise over what constitutes maintenance, the costs involved, and who is responsible. Discussions have ranged from the choice of tillage practices to evaluation of the costs and benefits of preserving wildlife habitat.

Virtually all advocates of sustainable agriculture believe in reducing the use of synthetic chemical inputs. Some go so far as to advocate an "alternative" as opposed to an "industrial" model of modern agriculture. Most advocates fall somewhere in between these two models.

The industrial model relies on industrial technologies and biotechnology to boost productivity, while at the same time cutting applications of chemical fertilizers and pesticides. New pesticide sprayers, for example, are able to deposit extremely small amounts of chemicals on plants and still effectively control pests. And new genetically engineered varieties hold promise for increasing yields, improving drought tolerance, and curbing susceptibility to pests with less volume of chemicals.

The alternative model, on the other hand, stresses smaller farms (using small farm technologies), reduced use of nonrenewable energy, more on-farm labor and management, greater biological diversity in fields and among crops and livestock, less processing of food, more resource conservation, more direct selling to consumers, and farm and regional self-sufficiency.

This holistic view (as well as less extreme approaches) calls for a systems approach to farming, more cooperation among farmers, and more involvement with the local community. The systems approach involves the integration of tillage practices, crop rotation schemes, on-farm fertility programs, natural and cultural pest control methods, and complementary crop and livestock activities.

Many of those who view sustainable agriculture as a holistic concept are concerned that conventional agriculture contributes to the decline of small towns and rural communities. Rural communities, they believe, would be enhanced by a system of smaller farms that depend on relatively more local labor and management expertise.

Is the Present Overvalued?

Notions of public costs and benefits, property rights, intergenerational equity, and the limitations of resources underlie many of the issues associated with sustainability and agricultural productivity. Individuals typically do not bear the full costs of environmental degradation, as might arise, for example, from pesticide runoff or from fertilizer leaching into groundwater supplies. Yet those who live "downstream" bear some of those costs if sedimentation and water pollution result from a farming operation.

A complicating factor is that pollution from a farm is costly to trace to its source, unlike a factory pipe that emits waste into a nearby stream. For this reason, agricultural operations are referred to as "nonpoint" sources of pollution, in contrast to "point" sources of much industrial pollution.

While farmers seek ways to lower input costs and raise profits, conventional agriculture is often criticized for disregarding the interests of future generations. The world's economic systems, moreover, have been charged with "speciesism," consistently dismissing the needs of nonhuman species. While a sustainable agricultural system is defined as "one that can indefinitely meet demands for food and fiber at socially acceptable economic and environmental costs," controversy arises over the definition of "socially acceptable."

For example, if a farmer views income today as worth substantially more than income in 10 years, and the natural rate of soil regeneration is low, then the farmer may choose to exhaust the soil rapidly and invest the proceeds elsewhere. Society, on the other hand, may place a higher value on future income from the land, and the welfare of future generations. That is in addition to the concerns for downstream impacts of silted waterways, lower water quality, and damaged wildlife habitat.

Economists and ecologists in theory approach the valuation of these costs from different angles, with different consequences. A standard economic approach is to discount future costs and benefits to determine the optimal rate of using today's resources—including soil, water, air, wildlife habitat, and gene pools. This implicitly assumes that consumption today is worth more than future consumption, and that control over resources rests with the current generation. A high discount rate implies a high value attached to a present activity compared with its value in the future.

Should the choice of discount rate be a political decision, or should it reflect economic or ethical arguments? Some groups question the ethics of making decisions about resource use that may limit the choices of future generations. A frequent argument is that the physical limits of resources prohibit discounting by current users, who lack sufficient information on the consequences of depletion. One approach would combine discounting with a "safe minimum standard" aimed at preserving natural resources.

World Food Demand Will Increase

Over the past 50 years, the world's population more than doubled, while annual per capita output of cereals rose from roughly 300 to 350 kg. Demographers now predict that the world's population could double again in the next 30 years, reaching 11-12 billion by the year 2100. This assumes that the rate of population growth has already peaked and will be declining to replacement levels in the next 70 years.

The ability of world agriculture to meet the increased demand for food and fiber depends on several uncertain factors, in addition to population growth. These factors include climate change, technological and economic growth, as well as resource availability.

The U.N. reports that about 1.5 billion hectares are now in crops, while an additional 1.5-2 billion could come into production. However, several analysts believe that most of the undeveloped land is of marginal value and lacks adequate water and infrastructure.

Trade could become more critical as populations in some areas outstrip the capacity of the land. Some regions, notably in Asia and Africa, already suffer from an inability to feed their own populations from domestic production or to earn enough foreign exchange to import food. These regions must find ways to stimulate economic growth to meet the demand for food likely to accompany continued population pressures.

Current research on the effect of climate change is highly speculative—the nature of long-term climatic, biological, and economic changes are too uncertain to model with confidence, nor is there even agreement that climate change is likely. Still, a USDA study offers preliminary estimates of the effects of a hypothetical doubling of carbon dioxide levels given current agricultural resources and technologies. The results show

Special Articles

The Green Revolution: A Giant Step for Productivity

Between 1950 and 1965, the world's population swelled by 40 percent, and analysts were predicting famines in parts of the developing world by the 1970's unless some action was taken. A major international effort was launched to raise per capita food production, particularly in developing nations, and the effort evolved into the "Green Revolution."

The keys to the program, implemented largely by the International Agricultural Research Centers, were the development and dissemination of high-yielding varieties of staple crops. These new varieties matured early and were less sensitive to variation in daylight hours, increasing the geographic areas of viability. Dissemination of the new seed targeted the regions and classes of farmers most likely to attain the higher yield potentials. In addition, farmers were educated in the use of the inputs—fertilizers, pesticides, and irrigated water—that were critical to the success of new varieties.

The Green Revolution succeeded in lifting per capita food production in the developing world, and the predicted famines did not materialize. Between the mid-1960's and 1985, the world's population grew another 45 percent, and cereal production jumped by 81 percent. The gain in Asia, where population went up by 61 percent, was even more dramatic: cereal production shot up 240 percent.

However, the Green Revolution was not without its costs. Many analysts assert that it has led to more erosion, soil compaction, and water quality problems. The monocropping and heavy pesticide use that characterized the revolution have led to new pest and weed problems that resist chemical solutions. And since not all farms and regions are suited to this type of farming, the revolution raised issues of equity.

The Green Revolution has set the stage for a worldwide cooperative effort to conserve environmental and agricultural resources, while maintaining the unprecedented productivity of the past four decades.

substantial yield effects in some countries. However, the net production effect globally could well be marginal, as reductions in production potential in some countries are balanced by gains in others.

On the whole, analysts at the World Bank, Resources for the Future, USDA, and many universities believe that the growth in demand can be met with technological advances and increased attention to environmental management. But water and soil resources will have to be more closely conserved, and technological advances will have to be substantial to achieve the production gains at an acceptable environmental cost.

Revisiting the Costs Of Productivity...

Although U.S. farmers are able to produce an abundance of inexpensive and safe food, concerns about environmental consequences have been growing. Since the 1940's, chemicals and machinery have played an increasing role in determining U.S. farm output. The shift has reflected rapid mechanization and technological advances, and relative declines in the cost of chemicals and machinery versus labor and land.

U.S. fertilizer use rose 195 percent to 54 million tons annually, between 1950 and 1981. Greater corn acreage and intensive use of nitrogen on corn since the 1960's have helped double the amount of nitrogen applied, and have made nitrogen the dominant purchased fertilizer.

Use of insecticides, herbicides, and fungicides increased steadily from the 1950's to the 1970's, both in volume and in acres treated. Between 1964 and 1982, the quantity of pesticides used for major field crops more than doubled, from 225 million pounds of active ingredient (a.i.) annually to 558 million. Growth began to slow by 1979 as the proportion of acres treated approached 100 percent and new chemicals were introduced that could be applied at lower rates.

As early as the mid-1950's, however, pest resistance to commonly used compounds such as DDT and chlordane was evident. By 1969, a total of 127 agricultural pests were known to have developed resistance to one or more pesticides. Now more than 160 species of agricultural pests are resistant, and 50 weed species resist herbicides.

In addition, widespread use of some pesticides suppresses populations of beneficial insects, the natural predators of many pests. When such natural controls of pest populations are eliminated by pesticide applications, secondary outbreaks of the targeted pests can occur, and population increases in minor insects and disease organisms can reach crop-damaging levels.

After 1982, reduced crop acreage led to a dropoff in total pesticide use. In addition, total fertilizer application dropped to about 44 million tons in 1986, remaining around that level to date. Although application rates per acre are higher now than 20 years ago, rates dropped in the mid-1980's, perhaps due to less favorable fertilizer-crop price ratios.

During the 1950's to the 1970's, research efforts focused on the development of more effective chemicals, while attention to developing nonchemical cultural methods declined. However, in the 1980's, many agrichemical companies greatly increased efforts to develop nonchemical alternatives.

...Lower Water Quality

Experiments are underway to document the ways in which conventional farming affects water and soil quality. Since 1985, a number of state, Federal, and private agencies have developed programs to sample groundwater resources and test for the presence of agricultural chemicals. These studies confirm that agricultural operations are involved in the groundwater quality problem.

For example, a survey released in 1990 by the U.S. Environmental Protection Agency (EPA) estimates that 10 percent of the nation's community drinking water wells and 4 percent of the rural domestic drinking water wells have detectable residues of at least one pesticide. However, fewer than 1 percent have residues above levels considered tolerable for human consumption. The survey also showed that more than half of the nation's wells contain nitrates. An estimated 1.2 percent of the community wells and 2.4 percent of the rural wells had concentrations above the EPA's maximum contaminant level (MCL) established to protect human health. MCL's are based on exposure over an entire year.

Water samples analyzed by the U.S. Geological Survey (USGS) in 1991 show the herbicide atrazine present for several weeks at a time in concentrations exceeding EPA's MCL in rivers as large as the Mississippi and the Missouri. Atrazine concentrations exceeded the MCL in 27 percent of 146 samples of water taken from the Mississippi, Missouri, and Ohio rivers. More than three fourths of these samples also contained the herbicides alachlor, cyanazine, and metolachlor.

The results confirm other recent USGS studies of smaller rivers in the Midwest. They show a sharp increase in herbicide concentrations following their application to cropland in April and May. The increases are linked to late spring and summer rains that flush some of the herbicides into streams. USGS studies of 150 streams in 1989 and 1990 showed that herbicide levels drop below the MCL during the fall.

Much remains to be learned about the links between groundwater quality and farming. Some contend that "quasi-point" sources play a large role, such as spills from applicator loading and mixing sites, accidents, and improper storage and disposal. Among the unknowns is the level of groundwater contamination due to the application of similar chemicals to lawns, gardens, golf courses, and the like.

...And Erosion

Other research focuses on erosion, which lowers soil productivity by cutting crop yields and increasing the need for fertilizer and lime. USDA research found that another 100 years of erosion in the U.S. at 1982 levels would trim 3.6 percent off the productivity of the nation's cropland. The figure is an average: about 60 percent of cropland would lose less than 2 percent of productivity, while 0.5 percent would lose over half. The USDA study assumed continued use of current farming practices. Improvements in technology would lower the productivity loss estimates.

However, the USDA study did not include the "downstream" effects of erosion on society—the costs of sedimentation and damage to water quality. Other studies have shown that the offsite costs, which are difficult to quantify, are far greater than the value of the lost productivity. Estimates put these damages at $6.9 to $27 billion a year.

Analysts have constructed a measure of soil's tolerance to erosion, or *T*-value. The *T*-value is the maximum rate of erosion under which a high level of crop production can be maintained indefinitely. In 1987, 43 percent of the nation's cropland was eroding above *T*, down slightly from 1982. Of the land eroding above *T*, two-thirds was eroding between *T* and three times *T*.

Since 1987, farmers have been working to reduce erosion, and further reductions are likely. By December 1991, farmers had implemented conservation compliance plans on 67 million acres of highly erodible cropland. That's about half of all highly erodible cropland. Conservation plans should be in place for the remainder by 1995.

New Farming Techniques Are Emerging

Farmers often lack information on growing practices that minimize the use of chemicals while maintaining yields and returns comparable to conventional techniques. Meanwhile, advances in industrial technologies and biotechnology continue to revolutionize farming. Together with the research community and government agencies, some farmers are developing new practices and approaches that lessen the impact on the environment while maintaining growers' income levels.

The fact is that no one knows what farming techniques and systems will be "sustainable." Can technological advances be relied upon to offset a declining natural resource base? Some argue that consumption of nonrenewable resources must at least be offset by an increase in renewable resources. Others contend that consumption of renewable resources must be kept below the rate of natural regeneration.

Nevertheless, the sustainable agriculture movement is challenging farmers, researchers, and policymakers to revisit some key issues, change farm policies, and redirect research efforts at USDA, universities, and other national and international organizations.

In a future article, *AO* will examine techniques and developments in four key elements of sustainable farming systems: crop rotation, alternative tillage practices, pest control, and maintenance of soil fertility. The followup article will also cover recent steps taken by policymakers in the U.S. and other developed countries to address the goals of sustainable agriculture. *[Gregory Gajewski and Linda Calvin (202) 219-0888, Ann Vandeman and Utpal Vasavada (202) 219-0432]* AO

Special Articles

Secretaria de Turismo de Mexico

Environment & Food Safety Are Issues in U.S.-Mexico Trade

With strong trade ties and a 2,000-mile common border, the U.S. and Mexico inevitably confront common food safety and environmental issues. Although current environmental problems in Mexico are related largely to industrial growth, some are linked to agricultural production, as they are in the U.S. Likewise, various pathogens, including crop pests and livestock diseases indigenous to the U.S. or Mexico, make trade regulations necessary to protect agriculture and food safety in both countries.

Cooperation between the two countries is the key to reducing environmental and food safety problems, while keeping trade moving. In this segment of a five-part series, AO looks at issues linking U.S. and Mexican environmental quality and food safety.

Environmental Impacts Accompany Growth

Economic growth can be a double-edged sword for environmental quality. Unless economic policies are carefully implemented, production can increase at the expense of environmental quality. Growth can also have a positive impact on the environment, when higher incomes and quality of life lead to increased demand for environmental protection. Some studies have estimated that environmental quality becomes important at income levels of $5,000 per capita.

Because the U.S. and Mexico share a common border, environmental problems in one country can easily become problems in the other. The U.S.-Mexican border is 2,000 miles long and the region is inhabited by 5 million people. For many years, the border region was dominated by agriculture. With the beginning of the maquiladora plan to increase investment in Mexico in the mid-1960's, manufacturing increased significantly along the border.

The rapid growth in manufacturing in this area has generated environmental problems that affect both the U.S. and Mexico, such as increased water contamination, depletion of water supplies, air pollution, degradation of natural habitats, and the production of hazardous wastes. The manufacturing sector in the region grew quickly, with little time to develop suitable infrastructure to moderate or control pollution—such as sewer and waste treatment plants.

In the past, the U.S. and Mexico have cooperated in solving shared environmental problems, producing several formal and informal agreements on water rights, species protection, and disposal of hazardous wastes. Growth in Mexico—near the border region or beyond—will inevitably affect future environmental quality. Growth may aggravate existing problems, but eventually the higher incomes that accompany economic growth should also lead to a greater demand for environmental quality.

Agro-Environmental Problems Are Shared

U.S. and Mexican agriculture contribute to both internal and trans-boundary environmental problems. Mexico's water supplies, for example, often originate in the U.S., but concerns persist that water is being depleted by U.S. farmers and that salinization of water supplies is on the rise. The use of agricultural chemicals has also led to a decline in water quality.

Mexico's movement toward a more competitive agricultural sector has led to changes in input use, crop mix, and production location. Policies to encourage crop and livestock production have also resulted in degradation of land from desertification and soil erosion, deforestation from overgrazing, and contaminated surface and groundwater supplies from chemical use and irrigation. The degree of environmental degradation in Mexico varies widely over production regions, depending on agricultural production practices, government policies, and the quality of agricultural resources.

Mexico's total land area is 190 million hectares, but only 12 percent, or about 23 million hectares, is arable, and this has remained relatively stable since 1961. Most recent estimates indicate that over half of Mexico's soil area is either totally eroded or undergoing accelerated erosion.

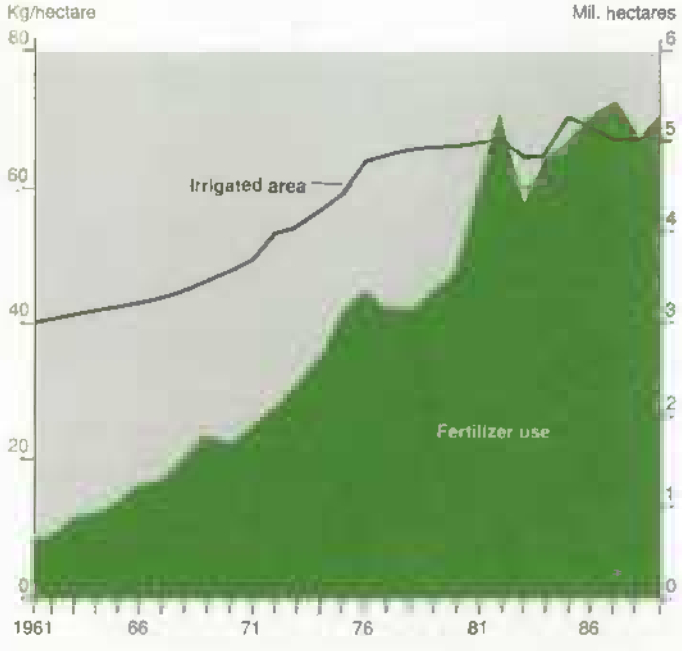
Since 1961, Mexico has lost about 36 percent of its total forested area. Deforestation is closely linked to livestock production and federally supported programs to expand the agricultural frontier. Cattle production in Mexico is typically land-extensive. Although some feedlots are located on the border, Mexico's land tenure system effectively inhibits large-scale, modern ranching operations. Cattle grazing can lead to environmental degradation when animal densities are high, if manure disposal is improper, or if overgrazing occurs.

Irrigation Jeopardizes Water Quality

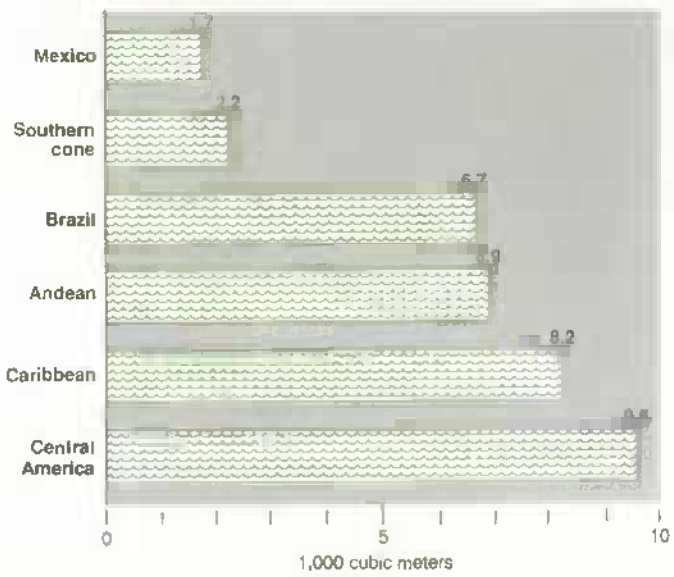
Commercial farming in Mexico relies heavily on irrigation subsidies, agricultural chemicals—including subsidized fertilizer—price supports, and import restrictions. The supply of water, a critical input, is in jeopardy in several production areas. Compared with other Western Hemisphere countries, water availability in Mexico is relatively low. Runoff water resources measure 1,700 cubic meters per hectare in Mexico, versus 6,700 cubic meters in Brazil. Mexican irrigation development may be approaching the water supply potential.

Since 1961, irrigated area has increased from 3 million to 5 million hectares, or from 13 to 21 percent of total arable area. Until quite recently, irrigation construction and maintenance was subsidized by the Mexican government. Although subsidies vary by crop, estimates indicate that in recent years, producers paid only about 30 percent of the market value for irrigated water, and about half of the operation and maintenance costs.

Mexico's Irrigation and Fertilizer Use Leveled Off In the 1980's



Water For Agriculture Is Scarce in Mexico



Runoff water resources per hectare, representing the sum of all water flows for a year, regardless of origin. Southern cone includes Argentina, Chile, Falkland Islands, Paraguay, and Uruguay.

Water availability is critical in Mexico because irrigation is required to grow a significant share of commodities—for domestic use as well as export. All winter vegetables, for example, are produced under nationally operated irrigation districts. About 25 percent of total irrigated acreage is planted to wheat, and about 90 percent of all wheat production is irrigated.

Water availability is particularly crucial in the northern state of Sonora, where irrigated (pumped from groundwater) wheat and horticultural crops predominate. In Sonora, for example, more than 70 percent of all arable land is irrigated, but high water demand is depleting groundwater supplies.

Irrigation is not restricted to arid and semi-arid zones but is used to supplement rainfall in other zones during the dry season. In addition to depleting groundwater supplies, irrigation often results in increased salinity of water and soil and increased nitrate, phosphate, and pesticide contamination. Salinization results when dissolved salts in irrigation water remain in the soil as evaporation occurs. To control salinization, drainage systems can be installed to collect salted water which is then blended with fresh water and either discharged or evaporated.

While draining saline water is beneficial to farmers within the drainage system, it produces problems for other farmers. If a farmer does not have a drainage system, salinity becomes an on-farm problem. Salinity can be detrimental to yields of commodities that are salt intolerant, such as onions and tomatoes. Other crops, such as wheat and soybeans, are less sensitive to salinity. In 1980 over 12 percent of irrigated area in Mexico was estimated to be either wholly or partially affected by salinization, with the greatest damage occurring in the arid and semi-arid north.

Special Articles

Growth in irrigated area has slowed somewhat since 1981, due to several factors, including increased marginal cost of irrigation projects and higher interest rates, reduced foreign loans and tight budgets for funding, increases in energy (pumping) costs, and a decrease in prices of irrigated crops.

Fertilizer Use Slows in the 1980's

As in many developing countries, irrigation is only one part of a technological package that includes high-yield seed varieties and the use of fertilizers and chemicals to attain high yields. Excessive fertilizer use can lead to soil acidification and offsite water quality problems, as unused nitrogen and phosphorus is leached through the soil into water supplies.

Along with irrigation, fertilizer use also increased significantly in Mexican agriculture in recent decades. Between 1961 and 1989, per-hectare nitrogen and phosphate fertilizer use in Mexico increased 800 and 600 percent, respectively. Fertilizer subsidies have been prominent in Mexican agricultural policy. Depending on the year and crop, subsidies often resulted in fertilizer being priced well below world market prices, and the subsidies (and price supports) can encourage overapplication of fertilizers. But as with irrigation, the rate of increase in fertilizer use has slowed since 1981.

Fertilizer use (along with modern seed varieties, irrigation, and mechanization), has led to dramatic yield increases in Mexico, and is particularly high in regions producing for the export market. However, the rate of increase in fertilizer use has declined during the last decade. Over the past 30 years, wheat yields increased 128 percent; corn yields increased 70 percent, and sorghum yields, 51 percent. But since 1981, annual yield increases slowed—to 3 percent for wheat and 6 percent for sorghum and actually declined almost 7 percent for corn.

In general, Mexico's environmental problems, including those related to agriculture, are more severe than in the U.S. Mexico has extensive air, water, and hazardous waste pollution problems, and has only recently created an environmental agency to deal with these issues. The U.S. and Mexico continue to work together to solve environmental problems, particularly those shared at the border. The challenge for Mexico will be to develop policies that are compatible with its goals for agricultural production, farm income, and environmental quality. *[Margot Anderson and Leslie Pope (202) 219-0401]*

Food Safety Efforts Keep Trade Moving

The existence of various pathogens, including plant and animal pests and diseases, in the U.S. and Mexico make regulations necessary to avoid compromising agricultural production or food safety when products are traded. Sanitary and phytosanitary (S&P) regulations are in place in both Mexico and the U.S. to safeguard agricultural products, beverages, and feedstuffs against pathogens such as additives, contaminants, toxins, diseases, and pests. Phytosanitary regulations provide plant protection, while sanitary regulations deal with food safety and animal health.

Cooperation between the two countries has helped control, eliminate, or eradicate a number of pests and diseases. Likewise, cooperation is working to resolve contentious trade issues that can result from disparities in the S&P conditions or regulations.

Sometimes, reductions in a country's tariff barriers coincide with a proliferation of S&P regulations dealing with agricultural and food trade. It can be difficult to determine whether an S&P regulation is designed for human, animal, or plant protection, or is put in place as a nontariff barrier to trade—replacing the protection from tariffs. The highly technical nature and relatively low transparency of S&P regulations makes the distinction difficult, and often contentious. Transparency refers to the clarity and availability of information regarding regulations between governments of the importing and exporting countries.

Genuine differences may occur in regulations because of countries' consumption preferences, production practices, or environment that result in varying levels of exposure to pathogens. S&P regulations are typically designed to meet domestic needs rather than the import requirements of other countries. Different scientific literature as well as divergent political philosophies also influence regulations in each country.

Harmonized or equivalent standards and regulations between trading partners do not necessarily guarantee equal access for products among source countries. The access of some products to an import market is in part determined simply by the existence or nonexistence of specific pathogens in the exporting and importing countries.

Cooperation Benefits Both Countries

U.S.-Mexico cooperative programs to control, eliminate, or eradicate pests and plant and animal diseases in Mexico serve to protect producers in both countries from detrimental effects. Mexico acts as a buffer for the U.S. against pests and diseases from the rest of Latin America. The large common land border between the U.S. and Mexico is more difficult and costly to quarantine than the much smaller common border between Mexico and Central America. The U.S. helps Mexico with its port-of-entry inspections to prevent exotic pests or diseases from entering Mexico and subsequently the U.S.

U.S.-Mexican cooperation has eradicated several pathogens in Mexico, including the Khapra beetle and foot and mouth disease in the 1950's, the Mediterranean fruit fly (Medfly) in 1982, and screwworm in 1991. Joint commissions are still maintained to prevent the reintroduction of exotic pathogens. Reintroductions pose a constant threat. For example, Medfly

Some Common S&P Terms

Sanitary and phytosanitary measures are used to eradicate, eliminate, or control pathogens or hazards. According to the *Oxford English Dictionary*, a "pathogen" can be any component of the physical environment—pests, microorganisms, viruses, chemicals, extraneous materials—that causes a hazard for a living organism—human, animal, or plant. A hazard may be eliminated without necessarily eradicating the pathogen that causes it.

- *Eradication* is the deliberate extinction of a pathogen, for example, destroying infected animals. Hog cholera was eradicated from the U.S. in 1978 following systematic diagnosis and destruction of the infected herds.
- *Elimination* extinguishes a hazard, but not the causative pathogen—for example, by vaccinating animals against disease. Mexico vaccinates hogs for hog cholera. However, since the pathogen is still present, the risk of new outbreaks still exists.
- *Control* prevents the regeneration of a hazard by treating imports for exotic pests or diseases to eliminate the hazard or eradicate the pathogen. Cold treatment of citrus imports to kill Mexican fruit flies is one method of control

eradication efforts have been threatened recently by increasing outbreaks on Mexico's side of the Mexican/Guatemalan border. These outbreaks are due in part to a lack of political and financial support in Guatemala for Medfly eradication. Furthermore, recent Medfly appearances in California could pose a threat to Mexican horticultural production if the pests were to travel south on U.S. cargo.

Cooperative efforts are continuing to defend the U.S. and Mexico against other pathogens. The Mexican fruit fly, for example, is a serious pest that blemishes fruit, reducing its market value. The flies currently limit U.S. imports of fresh fruits from Mexico, and threaten citrus production in California, Arizona, and Texas.

USDA's APHIS is working with the Mexican Secretariat of Agriculture (SARH) to prevent the fruit flies from moving north. These efforts include a fly-free zone established in the state of Sonora. Unlike fruit grown in other parts of Mexico, untreated fruit grown in the fly-free zone is allowed to be exported to the U.S. without being fumigated. Currently eight municipalities in Sonora have fly-free status.

Mexico would like to expand its fly-free area and has a national campaign to reduce and eliminate Mexican fruit fly populations. Integrated pest management is among the programs being used to control the pest.

In addition to cooperation on livestock diseases and plant pest problems, the U.S. and Mexico also work together on food safety issues. Under the U.S.-Mexican Standards Agreements of 1987, Mexico's Health Secretariat (SSA) and the U.S. Food and Drug Administration (FDA) agreed to coordinate food safety, with FDA helping to strengthen Mexico's existing food safety regulations. The regulations were often vague, nontransparent, and inconsistently enforced, resulting in unexpected delays and expenses for firms exporting to Mexico.

Nonchemical Treatments Promote Safety

The presence of some pathogens in Mexico and in the U.S. means exports of some agricultural products require some form of treatment to prevent the introduction of the pathogens into the importing country. The very existence of some pathogens prevents trade in certain products.

However, the treatments used to control or eliminate hazards have certain drawbacks. The treatments themselves—chemicals applied to plants and plant products—may pose safety questions for consumers, workers applying the treatments, and workers in treated fields. And vaccination of animals creates antibodies that make it difficult to determine the presence of another, active virus that could spread in an importing country.

Interest in nonchemical alternative treatments has risen because of consumer concerns about chemical residues in food products. Nonchemical alternatives, such as eradication, refrigeration, vapor heat, irradiation, and biological control are being used or considered to control the transmission of pathogens across borders.

Eradication is one alternative currently used for certain pathogens in the U.S. and Mexico. Eradication can involve the destruction of the infected or infested animals or plants and the disinfection or destruction of the materials they touched or occupied. Because a pest or disease may be well integrated into the environment, nationwide eradication tends to be difficult and expensive in the short run, although it may provide better quality products in the long run.

Cold treatment is used to eliminate fruit flies and other pests. The product is typically refrigerated for 10-22 days at temperatures slightly above freezing. A drawback is the time required for storage, although in some cases, refrigeration can take place during transport.

Vapor heat treating is also used on certain fruits to treat for fruit flies. Depending on the product and pest, the central temperature of the fruits must be raised and maintained over a period of several hours. The fruit's temperature is raised by saturating it with hot vapor, which condenses on the fruit and gives off a latent heat. A shorter treatment time is one advantage of vapor heat treating over refrigeration.

Another nonchemical alternative is low-dose irradiation, which can delay ripening and sprouting in fresh foods and disinfest foods of insects. Irradiation for this purpose was approved by the FDA as a postharvest treatment for domestically produced fruits, vegetables, and grains in 1986. While radiation levels sufficient to kill crop pests may also damage the host product, much lower levels can be used to sterilize the pests.

In many instances, sterilization may be the preferred treatment for traded products. Infestation levels on imported products may sometimes be quite low and the damage to the product minimal, but if even a small number of exotic pests is introduced into an importing country and allowed to propagate, the consequences to agricultural production in the importing country could be devastating. Irradiation has been used for many years to sterilize fruit flies for release in large numbers to disrupt the flies' mating and reduce future generations.

Irradiation leaves no residues to prevent recontamination and, as an import measure, may need to be performed at or near the port of entry unless other protective measures can be taken during storage and transport. This has important implications for locating irradiation plants and for the feasibility of using existing irradiators or of combining food use with sterilizing medical equipment and supplies. Economies of size exist for irradiation plants, and there may be substantial cost advantages to large centrally located irradiators, decreasing its potential as a cost-effective alternative to chemical fumigation to treat imports.

Biological control also holds promise for eliminating crop pests. A Mexican roundworm, a type of nematode, has been used in experiments to control outbreaks of Medflies in California. Predatory wasps are being considered as a control measure for whiteflies, which have recently ravaged fruit and vegetable crops in the U.S. and Mexico.

Pest-Free Zones Give Trade Right-of-Way

Free zones are a less expensive alternative to eradicating a livestock disease or crop pest throughout an entire country. The zones need not be based on national borders, but can be established for subnational jurisdictions or for regions that transcend national boundaries. A subnational free zone, such as a state, could be established as an interim step towards country-wide eradication because of the smaller scale and lower cost of the project. Frequently, boundaries are determined by natural barriers to the movement of the pest or disease, such as mountain ranges or bodies of water.

Pest-Free Zones in Sonora
Help Mexico's Trade Access to U.S.

The free zone concept has been successfully applied to the Mexican fruit fly in the northwestern state of Sonora. The current pest-free zones in Sonora are established in contiguous municipalities that cover most of the western part of the state. Mexico would like to apply this concept to certain livestock diseases endemic to Mexico that have led to restrictions on U.S. imports of some Mexican meat and poultry products.

Sonora has also been suggested as a location for free zones for hog cholera and for Newcastle disease, which affects poultry. Sonora is a logical choice because it has a large common border with the U.S. and because it is the largest producer of pork and the second-largest producer of poultry meat of the Mexican border states. Sonora's common border with the U.S. is important in establishing free zones because unlike products from the more central and southern regions of Mexico, products from Sonora would not have to pass through infected or infested areas enroute to the U.S.-Mexican border.

The extensive cooperation between the U.S. and Mexico on sanitary and phytosanitary issues in the past has proven to be in the interest of both countries. Future issues will continue to be dealt with on a bilateral basis, as well as through ongoing GATT negotiations, especially those dealing with increased transparency in S&P regulations that affect trade. *[Kenneth W. Forsythe, Jr. (202) 219-0689]* AO

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Statistical Indicators

Summary Data

Table 1.—Key Statistical Indicators of the Food & Fiber Sector

	1991				1992				
	II	III	IV	Annual	I	II F	III F	IV F	Annual F
Prices received by farmers (1977=100)	151	147	139	146	141	—	—	—	—
Livestock & products	165	159	155	162	154	—	—	—	—
Crops	136	135	123	130	127	—	—	—	—
Prices paid by farmers, (1977=100)									
Production items	175	173	172	173	171	—	—	—	—
Commodities & services, interest, taxes, & wages	189	189	189	189	188	—	—	—	—
Cash receipts ($ bil.) 1/	163	173	167	167	163	—	—	—	—
Livestock ($ bil.)	84	86	87	86	84	—	—	—	—
Crops ($ bil.)	80	87	79	81	79	—	—	—	—
Market basket (1982–84=100)									
Retail cost	139	137	137	137	138	—	—	—	—
Farm value	110	104	101	106	102	—	—	—	—
Spread	154	155	155	154	158	—	—	—	—
Farm value/retail cost (%)	28	27	26	27	26	—	—	—	—
Retail prices (1982–84=100)									
Food	137	136	137	137	136	—	—	—	—
At home	137	135	136	136	136	—	—	—	—
Away from home	137	139	141	138	141	—	—	—	—
Agricultural exports ($ bil.) 2/	8.8	8.4	11.3	37.6	11.3	8.8	8.6	—	40.0
Agricultural imports ($ bil.) 2/	5.5	5.3	5.8	22.6	—	—	—	—	22.0
Commercial production									
Red meat (mil. lb.)	9,636	9,985	10,316	39,402	10,097	10,075	10,525	10,435	41,132
Poultry (mil. lb.)	6,296	6,460	6,280	24,872	6,253	6,525	6,645	6,580	26,003
Eggs (mil. doz.)	1,420	1,441	1,475	5,758	1,455	1,435	1,445	1,475	5,810
Milk (bil. lb.)	38.6	38.3	38.2	148.5	37.8	38.7	36.4	36.3	149.2
Consumption, per capita *									
Red meat and poultry (lb.)	53.4	54.5	55.9	214.7	54.1	55.1	56.6	57.2	222.9
Corn beginning stocks (mil. bu.) 3/	6,940 3	4,789.0	2,992.0	1,344.5	1,521.2	6,541.1	4,558 9	—	1,521.2
Corn use (mil. bu.) 3/	2,151.6	1,797.8	1,472.2	7,760.7	2,461.1	1,986.7	—	—	7,870.0
Prices 4/									
Choice steers—Neb. Direct ($/cwt)**	77.92	69.15	69.96	74.28	75.77	73–77	69–75	71–77	72–76
Barrows & gilts—7 mkts. ($/cwt)	53.34	50.85	39.84	48.88	38.68	40–44	38–44	36–42	38–42
Broilers—12-city (cts./lb.)	52.2	54.2	50.5	52.0	50.2	48–52	48–54	44–50	48–52
Eggs—NY gr. A large (cts./doz.)	70.2	77.1	76.8	77.5	63.8	63–67	71–77	73–79	68–72
Milk—all at plant ($/cwt)	11.37	12.30	13.67	12.23	13.00	11.85–12.85	12.20–13.20	13.00–14.00	12.50–13.30
Wheat—KC HRW ordinary ($/bu.)	3.00	3.11	3.82	3.18	—	—	—	—	—
Corn—Chicago ($/bu.)	2.48	2.47	2.49	2.42	—	—	—	—	—
Soybeans—Chicago ($/bu.)	5.73	5.65	5.66	5.69	—	—	—	—	—
Cotton—Avg. spot 41–34 (cts./lb.)	81.0	66.7	55.6	69.7	—	—	—	—	—

	1984	1985	1986	1987	1988	1989	1990	1991	1992 F
Gross cash income ($ bil.)	156.1	157.9	152.8	165.1	171.9	179.9	186.0	182	178–186
Gross cash expenses ($ bil.)	118.7	110.7	105.0	109.8	114.5	120.5	124.2	125	126–131
Net cash income ($ bil.)	37.4	47.1	47.8	55.3	57.4	59.4	61.8	57	49–55
Net farm income ($ bil.)	26.1	28.8	31.0	39.7	40.6	50.1	50.8	42	37–43
Farm real estate values 5/									
Nominal ($ per acre)	801	713	640	599	632	661	688	682	689–702
Real (1982 $)	771	662	577	526	538	545	529	519	503–514

1/ Quarterly data seasonally adjusted at annual rates. 2/ Annual data based on Oct.–Sept. fiscal years ending with year indicated. 3/ Sept.–Nov. first quarter; Dec.–Feb. second quarter; Mar.–May third quarter; Jun.–Aug. fourth quarter; Sept.–Aug. annual. Use includes exports & domestic disappearance. 4/ Simple averages, Jan.–Dec. 5/ 1990–92 values as of January 1. 1986–89 values as of February 1. 1984–85 values as of April 1. F = forecast. — = not available.

* The pork carcass to retail conversion factor has been revised. ** Omaha Choice steer price has been replaced by the Nebraska Direct, 1,100–1,300 lb. Choice steer price.

U.S. & Foreign Economic Data

Table 2.—U.S. Gross Domestic Product & Related Data

	Annual			1990	1991			
	1989	1990	1991 R	IV	I	II	III	IV R
	$ billion (quarterly data seasonally adjusted at annual rates)							
Gross domestic product	5,244.0	5,513.8	5,672.6	5,557.5	5,589.0	5,652.6	5,709.2	5,739.7
Gross national product	5,248.2	5,524.5	5,685.8	5,583.2	5,611.7	5,660.6	5,720.1	5,750.7
Personal consumption expenditures	3,517.9	3,742.6	3,889.1	3,812.0	3,827.7	3,868.5	3,916.4	3,943.7
Durable goods	459.8	465.9	445.2	451.9	440.7	440.0	452.9	447.3
Nondurable goods	1,146.9	1,217.7	1,251.9	1,246.4	1,246.4	1,252.9	1,257.4	1,251.1
Clothing & shoes	200.5	208.7	211.0	206.8	208.2	212.8	214.6	208.4
Food & beverages	563.3	595.8	619.3	604.8	616.3	620.5	620.4	620.0
Services	1,911.2	2,059.0	2,191.9	2,113.6	2,140.7	2,175.6	2,206.1	2,245.2
Gross private domestic investment	837.6	802.6	726.7	750.9	709.3	708.8	740.9	747.9
Fixed investment	801.6	802.7	745.2	787.4	748.4	745.8	744.5	742.0
Change in business inventories	36.0	0.0	-18.5	-36.5	-39.2	-37.1	-3.6	6.0
Net exports of goods & services	-82.9	-74.4	-30.7	-76.6	-36.8	-17.2	-37.3	-31.4
Government purchases of goods & services	971.4	1,042.9	1,087.5	1,071.2	1,089.8	1,092.5	1,089.1	1,079.5
	1987 $ billion (quarterly data seasonally adjusted at annual rates)							
Gross domestic product	4,836.9	4,884.9	4,848.8	4,855.1	4,824.0	4,840.7	4,862.7	4,868.0
Gross national product	4,840.7	4,894.6	4,860.2	4,877.7	4,843.7	4,847.8	4,872.0	4,877.3
Personal consumption expenditures	3,223.1	3,262.6	3,259.0	3,251.8	3,241.1	3,252.4	3,271.2	3,271.1
Durable goods	440.8	438.9	412.5	424.0	410.8	408.9	418.3	412.2
Nondurable goods	1,049.3	1,050.8	1,043.0	1,044.7	1,043.9	1,046.2	1,046.1	1,035.8
Clothing & shoes	187.9	187.4	182.9	184.1	181.7	186.1	184.7	179.0
Food & beverages	513.3	515.8	517.2	515.9	518.7	517.0	517.4	515.6
Services	1,732.9	1,773.0	1,803.4	1,783.1	1,786.3	1,797.2	1,806.8	1,823.1
Gross private domestic investment	789.2	744.5	673.7	696.6	657.0	656.3	686.5	694.9
Fixed investment	756.6	744.2	687.6	727.8	689.8	686.8	686.5	687.2
Change in business inventories	32.6	0.2	-13.9	-31.2	-32.8	-30.4	0.1	7.6
Net exports of goods & services	-75.7	-51.3	-20.9	-31.2	-18.6	-12.3	-31.1	-21.3
Government purchases of goods & services	900.4	929.1	937.1	937.9	944.5	944.3	936.1	923.3
GDP implicit price deflator (% change)	4.3	4.2	3.6	3.2	5.0	3.1	2.1	1.7
Disposable personal income ($ bil.)	3,788.6	4,058.8	4,218.4	4,137.5	4,161.0	4,207.5	4,238.2	4,276.8
Disposable pers. income (1987 $ bil.)	3,471.2	3,538.3	3,534.9	3,529.5	3,514.8	3,537.4	3,539.9	3,547.5
Per capita disposable pers. income ($)	15,313	16,236	16,695	16,479	16,492	16,678	16,752	16,855
Per capita dis. pers. income (1987 $)	14,030	14,154	13,990	14,058	13,965	14,022	13,992	13,981
U.S. population, total, incl. military abroad (mil.) *	247.3	249.9	252.7	250.9	251.6	252.2	252.9	253.7
Civilian population (mil.) *	245.1	247.8	250.8	248.8	249.4	250.1	250.8	251.6

	Annual			1991			1992	
	1989	1990	1991	Feb	Nov	Dec	Jan	Feb
	Monthly data seasonally adjusted							
Industrial production (1987=100)	108.1	109.2	107.1	105.7	108.1	107.4	106.6	107.2
Leading economic indicators (1982=100)	144.9	144.0	143.4	140.4	145.4	145.1	146.5	147.6
Civilian employment (mil. persons)	117.3	117.9	116.9	116.9	116.7	116.7	117.1	117.0
Civilian unemployment rate (%)	5.2	5.4	6.6	6.4	6.8	7.0	7.0	7.2
Personal income ($ bil. annual rate)	4,380.2	4,679.8	4,834.4	4,761.2	4,877.2	4,925.6	4,918.1	4,972.4
Money stock–M2 (daily avg.) ($ bil.) 1/	3,227.3	3,339.0	3,439.3	3,369.4	3,431.1	3,439.3	3,448.5	3,475.6
Three-month Treasury bill rate (%)	8.12	7.51	5.42	5.95	4.60	4.12	3.84	3.84
AAA corporate bond yield (Moody's) (%)	9.28	9.32	8.77	8.83	8.48	8.31	8.20	8.29
Housing starts (1,000) 2/	1,376	1,193	1,014	1,008	1,085	1,118	1,190	1,304
Auto sales at retail, total (mil.)	9.9	9.5	8.4	8.4	8.3	7.9	8.0	8.5
Business inventory/sales ratio	1.51	1.51	1.52	1.57	1.50	1.53	1.52	—
Sales of all retail stores ($ bil.)	145.1	150.6	151.8	150.7	152.5	152.4	155.6 P	157.7
Nondurable goods stores ($ bil.)	90.8	96.0	98.1	97.5	98.3	97.8	99.4 P	100.2
Food stores ($ bil.)	28.8	30.2	30.9	30.4	31.0	31.1	31.2 P	31.0
Eating & drinking places ($ bil.)	14.5	15.2	15.8	15.6	16.0	16.3	16.3 P	16.3
Apparel & accessory stores ($ bil.)	7.8	7.9	8.0	8.0	7.9	7.8	8.0 P	8.2

1/ Annual data as of December of the year listed. 2/ Private, including farm. R = revised. P = preliminary. — = not available.

Note: * Population estimates based on 1990 census.

Information contact: Ann Duncan (202) 219–0313.

Table 3.—Foreign Economic Growth, Inflation, & Exports

	1983	1984	1985	1986	1987	1988	1989	1990	1991 E	1992 F	1993 F	Average 1981-90
	Annual percent change											
World, less U.S.												
Real GDP	2.4	3.4	3.0	3.1	3.1	3.9	3.2	1.1	-1.0	1.1	3.0	2.8
GDP deflator	7.6	7.1	7.4	7.2	8.7	11.2	11.4	42.1	25.2	23.0	18.9	12.0
Real exports	2.2	8.6	2.5	3.4	5.9	7.6	7.0	4.4	-0.6	2.9	4.7	4.7
Developed less U.S.												
Real GDP	2.1	3.4	3.4	2.6	3.3	4.4	3.6	2.9	1.2	1.6	3.0	2.8
GDP deflator	6.2	4.9	3.9	3.9	2.7	3.1	3.8	3.6	4.4	4.2	2.0	4.8
Real exports	2.7	10.6	5.4	-0.1	4.1	7.3	9.7	7.8	3.8	2.6	4.9	5.7
Eastern Europe & C.I.S.												
Real GDP	2.7	2.0	0.7	3.5	1.2	1.7	1.0	-6.6	-14.4	-8.4	-2.0	0.9
GDP deflator 1/	3.1	3.0	4.2	5.7	8.2	22.5	25.8	190.1	73.1	53.2	36.3	27.6
Real exports	2.8	3.7	-6.8	11.6	6.3	7.4	-5.9	-10.1	-30.4	-1.1	0.2	1.0
Developing												
Real GDP	3.0	4.5	4.0	4.1	4.0	4.4	3.5	1.7	2.2	5.3	5.8	3.3
GDP deflator	36.7	37.3	36.4	25.5	33.1	26.5	19.5	17.7	11.9	12.9	12.2	29.1
Real exports	0.4	7.0	1.7	7.4	10.9	9.2	8.8	4.4	4.0	6.0	8.2	4.7
Asia												
Real GDP	8.4	7.5	6.4	7.0	7.6	9.0	5.3	5.5	5.2	6.1	6.6	6.8
GDP deflator	6.3	7.5	5.9	4.4	7.8	8.2	6.1	8.3	8.2	8.3	7.4	6.7
Real exports	6.4	11.3	2.9	18.9	15.8	14.9	8.2	6.6	7.4	6.5	8.5	9.1
Latin America												
Real GDP	-2.7	3.7	3.6	4.4	3.0	0.0	1.3	-0.9	2.8	3.6	4.2	1.1
GDP deflator 1/	30.0	41.2	68.8	59.5	124.6	31.8	37.0	32.1	16.5	18.1	17.6	46.4
Real exports	2.0	12.0	2.0	0.0	8.0	6.8	10.4	0.3	-0.7	3.1	5.1	4.9
Africa												
Real GDP	0.7	2.1	2.4	1.8	0.3	2.4	3.1	2.4	2.4	3.6	3.6	1.8
GDP deflator	15.4	12.1	12.2	8.0	25.1	17.1	19.4	15.2	17.8	13.3	8.4	14.3
Real exports	-5.3	-1.5	3.5	-1.0	0.0	2.9	5.0	8.5	4.1	7.7	5.6	-1.9
Middle East												
Real GDP	3.5	1.5	0.9	-1.2	-0.7	1.6	2.5	-6.5	-9.8	7.8	8.2	0.1
GDP deflator	-3.6	1.7	3.2	6.6	15.0	10.3	12.8	19.3	-2.5	10.1	14.1	8.1
Real exports	-19.6	-8.7	-7.1	-3.8	24.6	4.8	21.0	4.3	4.7	17.3	36.8	0.0

1/ Excludes Yugoslavia, Argentina, Brazil, & Peru starting in 1989. E = estimate. F = forecast.

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Farm Prices

Table 4.—Indexes of Prices Received & Paid by Farmers, U.S. Average

	Annual			1991				1992		
	1989	1990	1991 P	Mar	Oct	Nov	Dec	Jan	Feb R	Mar P
	1977 = 100									
Prices received										
All farm products	148	149	148	148	142	139	137	138	142	143
All crops	134	127	130	127	126	124	120	123	128	130
Food grains	156	123	115	107	128	133	142	146	154	149
Feed grains & hay	128	123	118	121	115	116	117	119	123	125
Feed grains	123	118	115	117	114	115	116	119	123	125
Cotton	98	107	108	114	104	101	92	85	82	81
Tobacco	149	152	159	157	159	163	161	157	157	175
Oil-bearing crops	102	93	90	95	84	83	83	84	85	86
Fruit, all	194	188	270	217	272	217	209	207	210	205
Fresh market 1/	205	197	295	231	297	229	219	217	221	215
Commercial vegetables	145	142	135	147	116	149	112	137	188	188
Fresh market	144	144	140	158	113	158	105	139	179	211
Potatoes & dry beans	186	189	144	136	105	103	103	101	99	108
Livestock & products	160	170	162	169	158	154	154	152	156	155
Meat animals	174	193	186	199	178	170	166	167	177	178
Dairy products	140	141	126	117	138	142	142	139	133	130
Poultry & eggs	137	131	126	138	123	121	127	115	111	111
Prices paid										
Commodities & services, interest, taxes, & wage rates	178	184	189	—	189	—	—	188	—	—
Production items	165	171	173	—	172	—	—	171	—	—
Feed	138	128	123	—	123	—	—	124	—	—
Feeder livestock	194	213	214	—	203	—	—	199	—	—
Seed	165	165	163	—	163	—	—	163	—	—
Fertilizer	137	131	134	—	132	—	—	132	—	—
Agricultural chemicals	139	139	151	—	154	—	—	154	—	—
Fuels & energy	180	204	203	—	200	—	—	192	—	—
Farm & motor supplies	150	154	157	—	159	—	—	160	—	—
Autos & trucks	223	231	244	—	248	—	—	248	—	—
Tractors & self-propelled machinery	193	202	211	—	216	—	—	216	—	—
Other machinery	208	216	226	—	230	—	—	230	—	—
Building & fencing	141	144	146	—	147	—	—	147	—	—
Farm services & cash rent	161	166	170	—	170	—	—	171	—	—
Int. payable per acre on farm real estate debt	176	173	172	—	172	—	—	166	—	—
Taxes payable per acre on farm real estate	151	156	160	—	160	—	—	165	—	—
Wage rates (seasonally adjusted)	185	191	201	—	193	—	—	193	—	—
Production items, interest, taxes, & wage rates	167	172	175	—	173	—	—	172	—	—
Ratio, prices received to prices paid (%) 2/	83	81	77	79	75	74	72	73	76	76
Prices received (1910-14=100)	674	681	667	678	651	636	628	630	649	654
Prices paid, etc. (parity index) (1910-14=100)	1,221	1,265	1,299	—	1,296	—	—	1,295	—	—
Parity ratio (1910-14=100) (%)2/	55	54	51	—	50	49	48	48	—	—

1/ Fresh market for noncitrus; fresh market & processing for citrus. 2/ Ratio of index of prices received for all farm products to index of prices paid for commodities & services, interest, taxes, & wage rates. Ratio uses the most recent prices paid index. Prices paid data are quarterly & will be published in January, April, July, & October. R = revised. P = preliminary. — = not available.

Information contact: Ann Duncan (202) 219-0313.

Table 5.—Prices Received by Farmers, U.S. Average

	Annual 1/			1991				1992		
	1989	1990	1991 P	Mar	Oct	Nov	Dec	Jan	Feb R	Mar P
CROPS										
All wheat ($/bu.)	3.72	2.61	2.85–3.05	2.53	3.07	3.24	3.44	3.55	3.78	3.85
Rice, rough ($/cwt)	7.35	6.70	7.40–7.60	7.07	7.58	7.58	7.62	7.77	7.91	7.81
Corn ($/bu.)	2.36	2.28	2.30–2.50	2.39	2.30	2.30	2.33	2.40	2.47	2.53
Sorghum ($/cwt)	3.75	3.79	3.93–4.29	3.93	3.93	3.95	3.99	4.07	4.20	4.32
All hay, baled ($/ton)	85.40	83.20	72.00	80.50	68.80	69.10	68.40	69.00	70.80	70.10
Soybeans ($/bu.)	5.69	5.75	5.25–5.75	5.76	5.49	5.48	5.45	5.54	5.59	5.70
Cotton, upland (cts./lb.)	66.2	68.2	—	68.9	62.5	62.4	55.6	51.6	49.6	4.9
Potatoes ($/cwt)	7.36	6.08	5.05	6.15	4.25	4.13	4.14	4.05	3.92	4.36
Lettuce ($/cwt) 2/	12.60	11.50	12.10	10.40	10.60	28.80	9.12	7.14	6.82	13.70
Tomatoes fresh ($/cwt) 2/	33.10	27.30	32.60	44.00	20.60	30.60	15.90	40.50	78.00	73.40
Onions ($/cwt)	11.40	10.50	11.80	11.90	8.60	9.08	10.50	10.70	12.90	16.20
Dry edible beans ($/cwt)	28.50	18.50	15.90	18.90	14.40	15.70	15.00	15.00	14.90	15.20
Apples for fresh use (cts./lb.)	13.9	20.9	—	20.2	24.9	25.3	25.7	24.9	24.9	24.2
Pears for fresh use ($/ton)	336.00	360.00	392.00	389.00	411.00	401.00	401.00	383.00	347.00	364.00
Oranges, all uses ($/box) 3/	7.08	6.16	7.31	7.51	11.09	5.91	5.95	5.93	6.90	6.04
Grapefruit, all uses ($/box) 3/	4.41	5.86	5.26	5.67	6.24	6.16	6.31	5.92	5.68	7.11
LIVESTOCK										
Beef cattle ($/cwt)	69.70	74.80	72.90	78.50	70.40	67.90	67.40	68.90	72.50	73.20
Calves ($/cwt)	91.80	96.50	100.00	106.00	93.90	90.00	87.60	88.30	92.80	94.90
Hogs ($/cwt)	43.20	54.00	48.80	51.50	43.60	38.00	38.60	36.40	39.80	38.80
Lambs ($/cwt)	67.30	56.00	52.60	51.10	51.70	50.20	52.00	53.50	55.20	62.30
All milk, sold to plants ($/cwt)	13.56	13.78	12.23	11.40	13.40	13.70	13.80	13.50	12.90	12.60
Milk, manuf. grade ($/cwt)	12.38	12.34	11.09	10.10	12.70	12.70	12.50	11.80	11.30	11.10
Broilers (cts./lb.)	36.1	32.4	31.0	30.6	31.1	29.6	29.0	30.0	29.9	29.7
Eggs (cts./doz.) 4/	70.0	70.4	66.9	60.5	63.8	64.0	71.8	58.2	54.3	54.2
Turkeys (cts./lb.)	40.0	38.4	38.5	37.6	38.9	40.0	40.9	37.4	35.3	37.0
Wool (cts./lb.) 5/	124.0	80.00	54.0	50.0	66.6	51.4	40.4	30.6	47.9	62.7

1/ Season average price by crop year for crops. Calendar year average of monthly prices for livestock. 2/ Excludes Hawaii. 3/ Equivalent on-tree returns. 4/ Average of all eggs sold by producers including hatching eggs & eggs sold at retail. 5/ Average local market price, excluding incentive payments. P = preliminary. R = revised. — not available.

Information contact: Ann Duncan (202) 219–0313.

Producer & Consumer Prices

Table 6.—Consumer Price Index for All Urban Consumers, U.S. Average (Not Seasonally Adjusted)

	Annual	1991						1992	
	1991	Feb	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb
					1982–84=100					
Consumer Price Index, all items	136.2	134.8	136.2	136.6	137.2	137.4	137.8	137.9	138.1	138.6
Consumer Price Index, less food	136.1	134.8	136.1	136.7	137.4	137.7	138.0	138.1	138.3	138.8
All food	136.3	135.5	136.5	136.0	136.0	135.8	136.2	136.7	137.2	137.5
Food away from home	137.9	136.2	138.4	138.7	138.9	139.1	139.3	139.6	139.7	139.9
Food at home	135.8	135.7	136.0	134.9	134.9	134.4	135.0	135.5	136.4	136.6
Meats 1/	132.5	132.8	133.1	132.9	131.9	131.3	131.5	130.8	130.0	130.3
Beef & veal	132.4	132.6	132.6	132.3	131.0	130.7	131.9	131.7	131.2	131.8
Pork	134.1	135.1	136.7	135.7	134.1	132.7	131.3	128.5	127.8	127.2
Poultry	131.5	132.7	132.5	132.4	131.0	131.0	129.3	130.2	131.2	128.1
Fish	148.3	148.7	146.1	145.2	147.8	149.4	149.5	150.4	154.6	151.0
Eggs	121.2	125.4	113.9	121.0	118.0	116.8	115.4	123.5	113.9	110.7
Dairy products 2/	125.1	125.2	124.0	124.5	125.3	125.7	126.2	127.4	128.2	128.1
Fats & oils 3/	131.7	133.1	131.6	132.1	131.1	131.7	129.8	129.3	130.7	131.3
Fresh fruit	193.9	190.6	198.8	187.4	194.3	185.4	183.9	188.6	188.6	183.1
Processed fruit	131.8	133.2	130.6	130.9	131.3	130.5	131.4	131.5	136.0	138.5
Fresh vegetables	154.4	152.5	157.7	142.2	137.6	134.0	149.6	150.7	152.7	163.5
Potatoes	144.6	140.9	164.3	156.2	143.7	132.1	129.9	129.0	130.9	131.7
Processed vegetables	128.5	128.4	129.3	128.7	128.1	128.7	127.7	127.6	129.2	129.0
Cereals & bakery products	145.8	144.3	145.8	146.5	146.5	146.9	147.5	147.4	148.9	149.3
Sugar & sweets	129.3	127.1	129.9	130.3	129.6	130.5	130.6	130.9	132.0	132.4
Beverages, nonalcoholic	114.1	116.3	113.1	112.9	112.8	113.9	113.0	112.5	114.9	116.0
Apparel										
Apparel, commodities less footwear	127.4	124.8	123.2	123.2	130.4	132.0	132.2	128.2	126.0	128.7
Footwear	120.9	118.4	119.3	120.2	122.2	123.4	123.4	121.8	121.3	122.4
Tobacco & smoking products	202.7	196.7	203.7	204.7	205.7	206.1	209.0	211.7	212.6	213.4
Beverages, alcoholic	142.8	141.6	143.4	143.8	144.4	144.5	144.0	143.9	144.8	145.7

1/ Beef, veal, lamb, pork, & processed meat. 2/ Includes butter. 3/ Excludes butter.

Information contact: Ann Duncan (202) 219–0313.

Table 7.—Producer Price Indexes, U.S. Average (Not Seasonally Adjusted)

	Annual			1991					1992	
	1989	1990	1991 P	Feb	Sept	Oct R	Nov	Dec	Jan	Feb
					1982 = 100					
Finished goods 1/	113.6	119.2	121.7	121.4	121.4	122.2	122.3	121.9	121.7	121.9
Consumer foods	118.7	124.4	124.1	124.6	122.7	123.0	123.1	122.2	122.5	123.5
Fresh fruit & melons	113.2	118.1	129.4	131.8	135.3	124.6	111.1	99.6	100.0	88.7
Fresh & dried vegetables	116.7	118.1	103.8	96.4	87.7	78.1	108.5	80.1	108.3	135.1
Dried fruit	103.0	106.7	111.5	111.4	111.8	112.1	111.8	112.0	113.7	115.1
Canned fruit & juice	122.7	127.0	128.6	127.3	129.6	130.3	131.3	133.2	134.7	136.8
Frozen fruit & juice	123.9	139.0	115.1	115.0	111.4	117.1	124.7	125.6	133.9	134.6
Fresh veg. excl. potatoes	103.9	107.8	100.2	87.3	81.8	73.5	113.1	76.1	117.5	154.7
Canned veg. & juices	118.6	116.7	112.8	114.8	111.4	111.0	110.1	109.8	109.7	108.8
Frozen vegetables	115.5	118.4	117.6	118.5	117.6	116.8	116.5	116.8	116.8	116.1
Potatoes	153.6	157.3	125.7	137.5	110.6	97.0	93.2	96.4	94.7	92.8
Eggs	119.6	117.6	110.7	110.5	105.8	105.0	102.1	118.7	91.9	94.1
Bakery products	135.4	141.0	146.6	145.5	147.6	147.8	148.4	148.9	149.1	150.1
Meats	104.8	117.0	113.3	117.0	108.5	109.1	105.9	104.8	103.7	105.8
Beef & veal	108.9	116.0	112.1	116.7	104.8	106.9	106.2	106.4	106.9	110.2
Pork	97.7	119.8	113.0	117.6	108.7	107.4	99.4	96.7	92.8	95.1
Processed poultry	120.4	113.6	109.9	106.5	112.8	110.6	108.8	105.5	105.5	104.8
Fish	142.9	147.2	151.3	157.9	138.9	147.8	155.3	156.3	160.2	167.2
Dairy products	110.6	117.2	114.6	112.0	115.9	119.3	119.7	120.1	118.5	116.1
Processed fruits & vegetables	119.9	124.7	119.5	120.2	118.6	119.2	119.9	120.4	121.9	122.2
Shortening & cooking oil	116.6	123.2	116.4	119.9	115.6	114.8	112.6	114.1	112.0	113.2
Soft drinks	177.7	122.3	125.6	127.6	124.6	124.6	124.9	124.1	124.7	125.9
Consumer finished goods less foods	108.9	115.3	118.7	118.2	119.0	119.7	119.7	119.3	118.7	118.6
Beverages, alcoholic	115.2	117.2	123.7	124.2	123.3	123.1	123.4	123.3	125.7	125.9
Apparel	114.5	117.5	119.6	118.8	120.2	120.3	120.3	120.5	120.8	121.3
Footwear	120.8	125.6	128.6	127.1	129.5	129.1	129.4	129.6	129.8	129.8
Tobacco products	194.8	221.4	249.3	237.4	254.9	255.0	255.3	257.1	268.4	268.4
Intermediate materials 2/	112.0	114.5	114.4	115.5	114.6	114.2	114.1	113.7	113.2	113.6
Materials for food manufacturing	112.7	117.9	115.3	115.5	114.8	115.4	114.4	114.6	114.2	114.2
Flour	114.6	103.6	97.6	92.6	98.6	102.4	104.9	109.6	116.5	122.7
Refined sugar 3/	118.2	122.7	121.8	123.2	121.2	120.8	121.0	120.8	120.8	121.5
Crude vegetable oils	103.1	115.8	103.2	110.0	101.7	98.4	95.4	95.9	94.7	96.1
Crude materials 4/	103.1	108.9	101.2	104.1	98.0	99.9	99.7	97.7	97.3	99.0
Foodstuffs & feedstuffs	111.2	113.1	105.5	107.3	103.0	102.6	101.6	101.9	104.0	106.4
Fruits & vegetables & nuts 5/	114.6	117.5	114.5	111.4	108.1	98.1	108.0	88.2	99.9	106.3
Grains	108.4	97.4	92.0	88.0	92.4	94.8	96.4	97.7	103.1	106.2
Livestock	106.1	115.6	107.9	113.9	101.1	100.9	96.6	97.7	100.0	106.0
Poultry, live	128.8	118.8	111.2	103.1	116.7	109.1	106.8	105.1	106.9	102.8
Fibers, plant & animal	107.8	117.8	115.1	126.3	103.5	96.3	90.3	89.7	85.4	83.4
Fluid milk	98.8	100.8	89.3	84.1	94.3	98.1	99.2	100.5	98.4	95.2
Oilseeds	123.8	112.1	106.4	111.2	107.0	102.1	102.9	103.0	104.3	105.2
Tobacco, leaf	93.8	95.8	100.4	100.2	104.1	103.5	98.3	104.8	102.2	102.2
Sugar, raw cane	115.5	119.2	114.3	113.7	114.4	114.2	114.3	113.5	112.5	112.4
All commodities	112.2	116.3	116.5	117.2	116.1	116.4	116.4	115.9	115.6	116.1
Industrial commodities	111.6	115.8	116.5	117.2	116.3	116.7	116.7	116.1	115.6	116.0
All foods 6/	117.8	123.2	122.2	122.5	120.7	121.0	121.1	120.2	120.4	121.3
Farm products & processed foods & feeds	115.4	118.6	116.4	117.1	115.1	115.1	114.8	114.5	115.3	116.5
Farm products	110.9	112.2	105.6	106.9	103.1	101.5	101.4	100.7	103.0	105.6
Processed foods & feeds 6/	117.8	121.9	121.9	122.3	121.1	121.9	121.5	121.4	121.4	122.0
Cereal & bakery products	131.1	134.2	138.1	136.0	138.6	139.9	141.0	141.9	142.7	144.0
Sugar & confectionery	120.1	123.1	128.4	128.4	129.8	128.5	128.7	128.7	129.3	128.5
Beverages	118.4	120.8	124.1	125.5	123.1	123.0	123.3	122.9	124.3	124.8

1/ Commodities ready for sale to ultimate consumer. 2/ Commodities requiring further processing to become finished goods. 3/ All types & sizes of refined sugar. 4/ Products entering market for the first time that have not been manufactured at that point. 5/ Fresh & dried. 6/ Includes all raw, intermediate, & processed foods (excludes soft drinks, alcoholic beverages, & manufactured animal feeds). P = preliminary. R = revised. — = not available.

Information contact: Ann Duncan (202) 219-0313.

Farm-Retail Price Spreads

Table 8.—Farm-Retail Price Spreads

	Annual			1991					1992	
	1989	1990	1991	Feb	Sept	Oct	Nov	Dec	Jan	Feb
Market basket 1/										
Retail cost (1982–84=100)	124.6	133.5	137.4	137.0	136.6	135.9	136.6	137.2	137.8	137.9
Farm value (1982–84=100)	107.1	113.1	106.1	107.5	102.0	101.6	101.1	101.6	100.2	102.1
Farm-retail spread (1982–84=100)	134.1	144.5	154.2	152.9	155.2	154.4	155.7	156.4	158.0	157.3
Farm value-retail cost (%)	30.1	29.7	27.0	27.5	26.2	26.2	25.9	25.9	25.5	25.9
Meat products										
Retail cost (1982–84=100)	116.7	128.5	132.5	132.8	131.9	131.3	131.5	130.8	130.0	130.3
Farm value (1982–84=100)	103.6	116.8	110.0	116.0	102.9	103.3	98.1	97.8	97.0	101.3
Farm-retail spread (1982–84=100)	130.2	140.4	155.6	150.0	161.7	160.9	165.8	164.7	163.9	160.0
Farm value-retail cost (%)	44.9	46.0	42.0	44.2	39.5	39.8	37.8	37.9	37.8	39.4
Dairy products										
Retail cost (1982–84=100)	115.6	126.5	125.1	125.2	125.3	125.7	126.2	127.4	128.2	128.1
Farm value (1982–84=100)	99.1	101.7	90.0	86.7	92.1	95.9	98.2	101.9	98.6	96.6
Farm-retail spread (1982–84=100)	130.8	149.5	157.5	160.7	155.9	153.2	152.0	150.9	155.5	157.1
Farm value-retail cost (%)	41.1	38.5	34.6	33.2	35.3	36.6	37.3	38.4	36.9	36.2
Poultry										
Retail cost (1982–84=100)	132.7	132.5	131.6	132.7	131.0	131.0	129.3	130.2	131.2	128.1
Farm value (1982–84=100)	117.1	107.6	102.5	97.7	106.5	103.1	99.6	98.4	99.4	98.1
Farm-retail spread (1982–84=100)	150.6	161.1	164.9	173.0	159.3	163.1	163.5	166.8	167.8	162.6
Farm value-retail cost (%)	47.2	43.5	41.7	39.4	43.5	42.1	41.2	40.4	40.5	41.0
Eggs										
Retail cost (1982–84=100)	118.5	124.1	121.2	125.4	118.0	116.8	115.4	123.5	113.9	110.7
Farm value (1982–84=100)	107.5	108.0	100.9	103.3	93.7	95.0	94.5	109.8	83.5	74.4
Farm-retail spread (1982–84=100)	138.1	153.2	157.6	165.2	161.7	155.9	152.9	148.1	168.5	175.8
Farm value-retail cost (%)	58.3	55.9	53.5	52.9	51.0	52.3	52.6	57.1	47.1	43.2
Cereal & bakery products										
Retail cost (1982–84=100)	132.4	140.0	145.8	144.3	146.5	146.9	147.5	147.4	148.9	149.3
Farm value (1982–84=100)	101.7	90.5	85.3	79.9	67.2	90.8	91.8	95.8	97.4	103.4
Farm-retail spread (1982–84=100)	136.7	146.9	154.3	153.3	154.8	154.7	155.3	154.6	156.1	155.7
Farm value-retail cost (%)	9.4	7.9	7.2	6.8	7.3	7.6	7.6	8.0	8.0	8.5
Fresh fruits										
Retail cost (1982–84=100)	154.7	174.6	200.1	196.5	203.0	194.6	190.8	196.9	196.7	186.6
Farm value (1982–84=100)	108.5	128.3	174.4	197.0	166.7	145.4	150.8	144.1	132.8	126.5
Farm-retail spread (1982–84=100)	176.0	195.9	211.9	196.3	219.8	217.3	209.3	221.3	226.2	214.3
Farm value-retail cost (%)	22.2	23.2	27.5	31.7	25.9	23.6	25.0	23.1	21.3	21.4
Fresh vegetables										
Retail costs (1982–84=100)	143.1	151.1	154.4	152.5	137.6	134.0	149.6	150.7	152.7	163.5
Farm value (1982–84=100)	123.3	124.4	110.8	96.2	86.6	84.8	104.2	82.5	103.8	123.1
Farm-retail spread (1982–84=100)	153.2	164.9	176.8	181.4	163.8	159.3	173.0	185.7	177.8	184.3
Farm value-retail cost (%)	29.3	28.0	24.4	21.4	21.4	21.5	23.6	18.6	23.1	25.6
Processed fruits & vegetables										
Retail cost (1982–84=100)	125.0	132.7	130.2	131.0	129.8	129.6	129.7	129.7	132.9	134.3
Farm value (1982–84=100)	132.4	144.0	120.6	120.8	118.3	117.0	116.3	128.7	126.8	127.2
Farm-retail spread (1982–84=100)	122.7	129.1	133.2	134.2	133.4	133.5	133.9	130.0	134.8	136.5
Farm value-retail costs (%)	25.2	25.8	22.0	21.9	21.7	21.5	21.3	23.6	22.7	22.5
Fats & oils										
Retail cost (1982–84=100)	121.2	126.3	131.7	133.1	131.1	131.7	129.8	129.3	130.7	131.3
Farm value (1982–84=100)	95.6	107.1	98.0	104.8	95.2	92.4	90.4	91.0	90.7	89.2
Farm-retail spread (1982–84=100)	130.6	133.4	144.2	143.5	144.3	146.1	144.3	143.4	145.4	146.8
Farm value-retail cost (%)	21.2	22.8	20.0	21.2	19.5	18.9	18.7	18.9	18.7	18.3

	Annual			1991				1992		
	1989	1990	1991	Mar	Oct	Nov	Dec	Jan	Feb	Mar
Beef, Choice										
Retail price 2/ (cts./lb.)	285.7	281.0	288.3	295.4	277.2	281.0	279.4	278.7	282.5	285.6
Wholesale value 3/ (cts.)	176.8	189.6	182.5	193.4	174.5	175.1	171.8	176.6	184.6	183.3
Net farm value 4/ (cts.)	157.6	168.4	160.2	175.5	149.8	152.5	149.2	155.2	165.7	168.5
Farm-retail spread (cts.)	108.1	112.6	128.1	119.9	127.4	128.5	130.2	123.5	116.8	117.1
Wholesale-retail 5/ (cts.)	88.9	91.4	105.8	102.0	102.7	105.9	107.6	102.1	97.9	102.3
Farm-wholesale 6/ (cts.)	19.2	21.2	22.3	17.9	24.7	22.6	22.6	21.4	18.9	14.8
Farm value-retail price (%)	59	60	58	59	54	54	53	56	59	59
Pork										
Retail price 2/ (cts./lb.)	182.9	212.6	211.9	213.9	207.7	205.1	200.9	198.7	199.8	198.2
Wholesale value 3/ (cts.)	99.2	118.3	108.9	110.8	104.6	97.6	98.3	93.6	99.3	95.6
Net farm value 4/ (cts.)	70.4	87.2	79.4	82.7	69.4	60.6	62.1	59.2	64.9	62.4
Farm-retail spread (cts.)	112.5	125.4	133.5	131.2	138.3	144.5	138.8	139.5	134.9	135.8
Wholesale-retail 5/ (cts.)	83.7	94.3	103.0	103.1	103.1	107.5	102.6	105.1	100.5	102.6
Farm-wholesale 6/ (cts.)	28.8	31.1	30.5	28.1	35.2	37.0	36.2	34.4	34.4	33.2
Farm value-retail price (%)	38	41	37	39	33	30	31	30	32	31

1/ Retail costs are based on CPI–U of retail prices for domestically produced farm foods, published monthly by BLS. The farm value is the payment for the quantity of farm equivalent to the retail unit, less allowance for byproduct. Farm values are based on prices at first point of sale & may include marketing charges such as grading & packing for some commodities. The farm-retail spread, the difference between the retail price & the farm value, represents charges for assembling, processing, transporting, distributing. 2/ Weighted average price of retail cuts from pork & choice yield grade 3 beef. Prices from BLS. 3/ Value of wholesale (boxed beef) & wholesale cuts (pork) equivalent to 1 lb. of retail cuts adjusted for transportation costs & byproduct values. 4/ Market value to producer for live animal equivalent to 1 lb. of retail cuts, minus value of byproducts. 5/ Charges for retailing & other marketing services such as wholesaling, and in–city transportation. 6/ Charges for livestock marketing, processing, & transportation.

Information contacts: Denis Dunham (202) 219–0870, Larry Duewer (202) 219–0712.

Table 9.—Price Indexes of Food Marketing Costs

(See the March 1992 issue.)
Information contact: Denis Dunham (202) 219-0870.

Livestock & Products

Table 10.—U.S. Meat Supply & Use

	Beg. stocks	Production 1/	Imports	Total supply	Exports	Ending stocks	Consumption: Total	Consumption: Per capita 2/	Primary market price 3/
	Million pounds 4/							Pounds	
Beef									
1989	422	23,087	2,179	25,688	1,023	335	24,330	69.3	73.86
1990	335	22,743	2,356	25,434	1,006	397	24,031	67.8	78.56
1991	397	22,916	2,406	25,719	1,188	419	24,112	67.3	74.28
1992 F	419	23,442	2,330	26,191	1,350	325	24,516	67.9	72–76
Pork									
1989	437	15,813	896	17,146	262	313	16,571	52.0	44.03
1990	313	15,354	898	16,565	239	296	16,030	49.8	54.45
1991	296	15,999	776	17,071	283	393	16,395	50.4	48.88
1992 F	393	17,226	785	18,404	295	375	17,734	54.1	38–42
Veal 5/									
1989	5	355	0	360	0	4	356	1.2	91.84
1990	4	327	0	331	0	6	325	1.1	96.51
1991	6	306	0	312	0	7	305	1.0	99.95
1992 F	7	287	0	294	0	4	290	0.9	89–93
Lamb & mutton									
1989	6	347	63	416	2	8	406	1.5	67.32
1990	8	363	59	430	3	8	419	1.5	55.54
1991	8	364	60	432	3	6	423	1.5	53.21
1992 F	6	360	60	426	3	9	414	1.4	53–57
Total red meat									
1989	870	39,602	3,138	43,610	1,287	660	41,663	124.0	—
1990	660	38,787	3,313	42,760	1,248	707	40,805	120.1	—
1991	707	39,585	3,242	43,534	1,474	825	41,255	120.2	—
1992 F	825	41,315	3,175	45,315	1,648	713	42,954	124.4	—
Broilers									
1989	36	17,424	0	17,460	814	38	16,608	67.1	59.0
1990	38	18,660	0	18,698	1,143	26	17,529	70.1	54.8
1991	26	19,817	0	19,843	1,261	36	18,546	73.5	52.01
1992 F	36	20,799	0	20,835	1,200	35	19,600	77.0	48–52
Mature chicken									
1989	157	568	0	725	24	189	511	2.1	—
1990	189	588	0	777	25	224	528	2.1	—
1991	224	569	0	793	28	274	491	1.9	—
1992 F	274	585	0	859	28	250	581	2.3	—
Turkeys									
1989	250	4,285	0	4,535	41	236	4,259	17.2	66.7
1990	236	4,734	0	4,970	54	306	4,610	18.4	63.2
1991	306	4,851	0	5,157	103	264	4,790	19.0	61.24
1992 F	264	4,987	0	5,252	115	250	4,887	19.2	58–62
Total poultry									
1989	442	22,278	0	22,720	878	483	21,378	86.4	—
1990	463	23,982	0	24,445	1,222	557	22,666	90.7	—
1991	557	25,237	0	25,793	1,391	575	23,827	94.4	—
1992 F	575	26,371	0	26,945	1,343	535	25,067	98.5	—
Red meat & poultry									
1989	1,312	61,880	3,138	66,330	2,165	1,123	63,042	210.4	—
1990	1,123	62,769	3,313	67,205	2,470	1,264	63,471	210.8	—
1991	1,264	64,822	3,242	69,328	2,866	1,400	65,062	214.6	—
1992 F	1,400	67,686	3,175	72,260	2,991	1,248	68,021	222.9	—

1/ Total including farm production for red meats & federally inspected plus nonfederally inspected for poultry. 2/ Retail weight basis. (The beef carcass–to–retail conversion factor was 70.6). 3/ Dollars per cwt for red meat; cents per pound for poultry. Beef: Medium # 1, Nebraska Direct 1,100–1,300 lb.; pork: barrows & gilts, 7 markets; veal: farm price of calves; lamb & mutton: Choice slaughter lambs, San Angelo; broilers: wholesale 12–city average; turkeys: wholesale NY 8–16 lb. young hens. 4/ Carcass weight for red meats & certified ready–to–cook for poultry. 5/ Beginning 1989 veal trade no longer reported separately. F = forecast. — = not available.

Information contacts: Polly Cochran, or Maxine Davis (202) 219–0767.

Table 11.—U.S. Egg Supply & Use

	Beg. stocks	Production	Imports	Total supply	Exports	Hatching use	Ending stocks	Consumption: Total	Consumption: Per capita	Wholesale price*
	Million dozen								No.	Cts./doz.
1987	10.4	5,868.2	5.6	5,884.2	111.2	599.1	14.4	5,159.5	254.9	61.6
1988	14.4	5,784.2	5.3	5,803.9	141.8	605.9	15.2	5,041.0	246.8	82.1
1989	15.2	5,598.2	25.2	5,638.5	91.6	643.9	10.7	4,892.4	237.3	81.9
1990	10.7	5,665.3	9.1	5,685.0	100.5	677.1	11.6	4,895.8	235.0	92.2
1991	11.6	5,757.8	2.3	5,771.7	154.3	705.1	13.0	4,899.3	232.9	77.5
1992 F	13.0	5,810.0	2.4	5,825.4	150.0	740.0	12.0	4,923.4	232.2	67–73

* Cartoned grade A large eggs, New York. F = forecast.

Information contact: Maxine Davis (202) 219–0767.

Table 12.—U.S. Milk Supply & Use

	Production	Farm use	Commercial: Farm marketings	Commercial: Beg. stock	Imports	Total commercial supply	CCC net removals	Commercial: Ending stocks	Commercial: Disappearance	All milk price 1/	CCC net removals: Skim solids basis	CCC net removals: Total solids basis 2/
	Billion pounds (milkfat basis)									$/cwt	Billion pounds	
1985	143.0	2.5	140.6	4.8	2.8	148.2	13.3	4.6	130.4	12.76	17.2	15.8
1986	143.1	2.4	140.7	4.5	2.7	147.9	10.8	4.1	133.0	12.51	14.3	12.9
1987	142.7	2.3	140.6	4.1	2.5	147.1	6.8	4.6	135.7	12.54	9.3	8.3
1988	145.2	2.2	142.9	4.6	2.4	149.9	9.1	4.3	136.5	12.26	5.5	5.9
1989	144.2	2.1	142.2	4.3	2.5	149.0	9.4	4.1	135.5	13.56	0.4	4.0
1990	148.3	2.0	146.3	4.1	2.7	153.1	9.0	5.1	139.0	13.73	1.6	4.5
1991	148.5	2.0	146.5	5.1	2.6	154.3	10.5	4.6	139.3	12.23	4.0	6.6
1992	149.2	2.1	147.1	4.5	2.6	154.2	7.8	4.5	142.2	13.00	2.6	4.5

1/ Delivered to plants & dealers; does not reflect deductions. 2/ Arbitrarily weighted average of milkfat basis (40 percent) & skim solids basis (60 percent). F = forecast.

Information contact: Jim Miller (202) 219–0770.

Table 13.—Poultry & Eggs

	Annual			1991					1992	
	1989	1990	1991	Feb	Sept	Oct	Nov	Dec	Jan	Feb
Broilers										
Federally inspected slaughter, certified (mil. lb.)	17,334.2	18,553.9	19,695.6	1,492.5	1,585.3	1,825.7	1,496.3	1,586.3	1,803.5	1,570.6
Wholesale price, 12-city (cts./lb.)	59.0	54.8	52.0	50.6	53.6	51.6	50.3	49.5	50.1	50.3
Price of grower feed ($/ton)	237	218	208	214	201	207	211	207	207	206
Broiler–feed price ratio 1/	3.0	3.0	2.7	2.8	3.2	3.0	2.8	2.8	2.9	2.9
Stocks beginning of period (mil. lb.)	35.9	38.3	26.1	24	41.4	41.5	39.5	38.8	36.1	39.2
Broiler–type chicks hatched (mil.) 2/	5,946.9	6,314.6	6,570.1	500.8	536.7	531.1	511.7	571.5	575.2	531.3
Turkeys										
Federally inspected slaughter, certified (mil. lb.)	4,174.8	4,560.9	4,672.3	322.0	405.9	483.6	418.6	348.1	364.9	331.8
Wholesale price, Eastern U.S., 8–16 lb. young hens (cts./lb.)	66.7	63.2	61.2	55.8	64.4	60.5	63.1	65.2	54.7	55.0
Price of turkey grower feed ($/ton)	251.0	238	235	237	230	243	242	241	241	236
Turkey–feed price ratio 1/	3.2	3.2	3.3	2.9	3.5	3.2	3.3	3.4	3.1	3.0
Stocks beginning of period (mil. lb.)	249.7	235.9	306.4	302.5	625.8	667.2	653.0	305.5	264.1	325.6
Poults placed in U.S. (mil.)	290.7	304.9	308.0	25.3	21.2	22.1	22.2	24.4	25.7	25.6
Eggs										
Farm production (mil.)	67,178	67,983	69,090	5,302	5,651	5,898	5,789	6,011	5,927	5,540
Average number of layers (mil.)	269	270	274	274	274	276	277	279	279	278
Rate of lay (eggs per layer on farms)	249.5	251.7	252.4	19.3	20.7	21.4	20.9	21.5	21.2	19.9
Cartoned price, New York, grade A large (cts./doz.) 3/	81.9	82.2	77.5	78.3	75.6	74.5	75.8	80.0	66.6	61.7
Price of laying feed ($/ton)	209	200	195	199	188	199	200	199	201	201
Egg–feed price ratio 1/	6.7	7.0	6.9	6.8	6.7	6.4	6.4	7.2	5.8	6.4
Stocks, first of month										
Shell (mil. doz.)	0.27	0.36	0.45	0.51	0.30	0.39	0.48	0.36	0.63	0.60
Frozen (mil. doz.)	14.9	10.3	11.2	11.2	12.4	12.5	12.7	11.5	12.3	15.2
Replacement chicks hatched (mil.)	383	399	416	34.5	33.9	34.1	30.4	32.7	32.5	31.9

1/ Pounds of feed equal in value to 1 dozen eggs or 1 lb. of broiler or turkey liveweight. 2/ Placement of broiler chicks is currently reported for 15 States only; henceforth, hatch of broiler–type chicks will be used as a substitute. 3/ Price of cartoned eggs to volume buyers for delivery to retailers.

Information contact: Maxine Davis (202) 219–0767.

Table 14.—Dairy

	Annual			1991					1992	
	1989	1990	1991	Feb	Sept	Oct	Nov	Dec	Jan	Feb
Milk prices, Minnesota–Wisconsin, 3.5% fat ($/cwt) 1/	12.37	12.21	11.05	10.04	12.02	12.50	12.48	12.10	11.71	11.21
Wholesale prices										
Butter, grade A Chi. (cts./lb.)	127.9	102.1	99.3	97.3	100.7	106.2	104.6	98.4	94.9	86.2
Am. cheese, Wis. assembly pt. (cts./lb.)	138.8	136.7	124.4	111.5	139.7	140.2	135.8	130.2	125.3	119.0
Nonfat dry milk (cts./lb.) 2/	105.5	100.6	94.0	85.1	93.9	114.8	110.7	108.5	95.3	97.6
USDA net removals 3/										
Total milk equiv. (mil. lb.) 4/	9,357.0	8,951.2	10,485	1,671.6	40.4	141.3	566.5	757.1	2,128.2	1,410.9
Butter (mil. lb.)	413.4	400.3	442.8	68.6	1.4	5.7	25.2	33.8	96.3	63.5
Am. cheese (mil. lb.)	37.4	21.5	81.6	18.0	.4	1.1	1.1	1.5	2.6	2.6
Nonfat dry milk (mil. lb.)	0	117.8	269.3	44.2	3.5	8.9	11.0	14.7	9.7	12.7
Milk										
Milk prod. 21 States (mil. lb.)	122,509	125,772	125,683	9,922	9,927	10,212	9,926	10,418	10,684	10,230
Milk per cow (lb.)	14,369	14,778	14,977	1,169	1,189	1,224	1,192	1,252	1,288	1,237
Number of milk cows (1,000)	8,526	8,512	8,392	8,484	8,350	8,346	8,329	8,322	8,296	8,273
U.S. milk production (mil. lb.)	144,239	148,319	148,535	7/ 11,732	7/ 11,705	7/ 12,102	7/ 11,763	7/ 12,347	7/ 12,696	7/ 12,128
Stock, beginning										
Total (mil. lb.)	8,379	9,036	13,359	14,762	18,483	17,649	16,602	15,886	15,841	16,731
Commercial (mil. lb.)	4,256	4,120	5,146	5,838	5,470	5,243	4,840	4,267	4,461	4,936
Government (mil. lb.)	4,122	4,916	8,213	8,924	13,014	12,405	11,963	11,629	11,379	11,795
Imports, total (mil. lb.)	2,499	2,690	2,629	142	224	261	256	287	160	—
Commercial disappearance (mil. lb.)	135,439	138,979	139,306	11,926	11,947	12,651	11,667	11,499	10,016	—
Butter										
Production (mil. lb.)	1,295.4	1,302.2	1,360.3	126.3	84.7	105.2	108.5	130.1	156.0	132.0
Stocks, beginning (mil. lb.)	214.7	256.2	416.1	468.7	629.4	597.2	567.1	543.0	539.4	568.6
Commercial disappearance (mil. lb.)	876.0	915.2	927.2	50.7	85.8	105.9	91.4	90.5	51.4	—
American cheese										
Production (mil. lb.)	2,674.1	2,690 8	2,776.9	222.4	205.8	221.6	214.9	246.1	245.5	230.0
Stocks, beginning (mil. lb.)	293.0	236.2	347.4	371.6	393.3	375.0	338.7	320.3	318.7	340.4
Commercial disappearance (mil. lb.)	2,683.1	2,781.0	2,759.9	213.3	223.9	255.1	231.8	245.3	219.6	—
Other cheese										
Production (mil. lb.)	2,941.3	3,170.4	3,229.3	235.6	270.7	286.3	282.1	292.0	268.5	265.8
Stocks, beginning (mil. lb.)	104.7	93 2	110.6	113.0	102.0	103.9	91.5	89.8	97.5	100.0
Commercial disappearance (mil. lb.)	3,208.9	3,429.8	3,517.4	254.7	292.7	328.4	311.8	316.1	279.1	—
Nonfat dry milk										
Production (mil. lb.)	874.7	876.6	879.0	77.9	44.5	48.9	54.1	81.7	80.2	78.1
Stocks, beginning (mil. lb.)	53.1	49.5	161.9	168.4	337.5	302.6	277.7	225.9	214.8	190.0
Commercial disappearance (mil. lb.)	873.0	695.0	664.4	44.4	61.1	49.2	45.9	43.0	71.1	—
Frozen dessert										
Production (mil. gal.) 5/	1,214.0	1,162.9	1,193.0	82.3	98.4	92.0	78.1	76.5	83.2	87.8

	Annual			1990			1991			
	1989	1990	1991	II	III	IV	I	II	III	IV P
Milk production (mil. lb.)	144,239	148,319	148,535	38,640	36,611	36,307	37,425	38,633	36,265	36,212
Milk per cow (lb.)	14,244	14,648	14,868	3,822	3,618	3,577	3,705	3,864	3,647	3,651
No. of milk cows (1,000)	10,126	10,127	9,990	10,109	10,118	10,151	10,101	9,999	9,940	9,918
Milk-feed price ratio 5/	1.65	1.71	1.58	1.69	1.74	1.57	1.49	1.47	1.59	1.77
Return4 over concentrate costs ($/cwt milk)	10.18	10.39	9.00	10.00	10.50	9.03	8.30	8.10	9.00	10.50

1/ Manufacturing grade milk. 2/ Prices paid f.o.b. Central States production area. 3/ Includes products exported through the Dairy Export Incentive Program (DEIP). 4/ Milk equivalent, fat basis. 5/ Hard ice cream, ice milk, & hard sherbet. 6/ Based on average milk price after adjustment for price support deductions. 7/ Estimated. P = preliminary. — = not available.

Information contact: LaVerne T. Williams (202) 219–0770.

Table 15.—Wool

	Annual			1990	1991				1992
	1989	1990	1991	IV	I	II	III	IV	I P
U.S. wool price, (cts./lb.) 1/	370	256	199	227	197	200	217	182	209
Imported wool price, (cts./lb.) 2/	354	287	187	270	235	199	194	222	250
U.S. mill consumption, scoured									
Apparel wool (1,000 lb.)	120,534	120,622	143,519	30,497	33,320	38,691	35,910	35,598	—
Carpet wool (1,000 lb.)	14,122	12,124	14,363	2,138	3,088	3,119	4,564	3,592	—

1/ Wool price delivered at U.S. mills, clean basis. Graded Territory 64's (20.60–22.04 microns) staple 2-3/4" & up. 2/ Wool price, Charleston, SC warehouse, clean basis, Australian 60/62's, type 64A (24 micron). Duty since 1982 has been 19.0 cents. — = not available.

Information contact: John Lawler (202) 219–0840.

Table 16.—Meat Animals

	Annual			1991					1992	
	1989	1990	1991	Feb	Sept	Oct	Nov	Dec	Jan	Feb
Cattle on feed (7 States)										
Number on feed (1,000 head) 1/	8,045	8,378	8,992	8,963	7,064	7,216	8,013	8,477	8,397	8,203
Placed on feed (1,000 head)	20,834	21,030	19,708	1,455	1,826	2,539	1,917	1,456	1,565	1,472
Marketings (1,000 head)	19,422	19,198	19,066	1,431	1,598	1,865	1,376	1,443	1,660	1,400
Other disappearance (1,000 head)	1,079	1,218	1,230	113	76	77	77	93	99	120
Beef steer–corn price ratio. Omaha 2/	30.3	32.8	31.6	34.3	28.8	29.9	30.5	29.7	29.9	31.0
Hog–corn price ratio, Omaha 2/	18.4	23.1	21.1	22.8	19.9	18.9	16.5	16.8	15.7	16.7
Market prices ($/cwt)										
Slaughter cattle										
Choice steers, Omaha 1,000–1,100 lb.	72.52	77.40	73.83	78.83	67.20	68.91	69.90	68.64	71.20	75.71
Choice steers, Neb. Direct, 1,100–1,300 lb.	73.86	78.56	74.28	79.60	68.07	69.79	71.02	69.07	72.55	76.75
Boning utility cows, Sioux Falls	48.98	53.60	50.31	51.49	49.77	47.83	43.77	47.22	43.53	45.25
Feeder cattle										
Medium no. 1, Oklahoma City 600–700 lb.	86.66	92.15	92.74	95.53	89.74	88.60	86.80	83.08	82.41	83.95
Slaughter hogs										
Barrows & gilts, 6–markets	44.03	54.45	48.88	51.93	46.53	43.16	37.82	38.55	38.91	40.31
Feeder pigs										
S. Mo. 40–50 lb. (per head)	33.63	51.48	39.84	46.82	38.22	33.75	30.22	28.17	27.18	36.72
Slaughter sheep & lambs										
Lambs, Choice, San Angelo	67.32	55.54	52.73	45.81	53.25	51.20	52.08	54.92	58.81	57.88
Ewes, Good, San Angelo	38.58	35.21	31.98	30.38	29.63	28.80	30.75	32.92	38.88	40.88
Feeder lambs										
Choice, San Angelo	79.85	62.95	53.27	49.06	52.63	51.70	52.75	54.75	62.00	66.00
Wholesale meat prices, Midwest										
Boxed beef cut–out value	114.78	123.21	118.31	123.24	110.61	113.04	113.43	111.18	114.38	119.65
Canner & cutter cow beef	94.43	99.96	99.44	100.50	99.69	96.16	91.06	93.02	92.87	95.60
Pork loins, 14–18 lb. 3/	101.09	117.52	108.39	109.13	105.85	100.87	88.63	90.19	96.89	99.13
Pork bellies, 12–14 lb.	34.14	53.80	47.79	57.20	38.97	32.26	30.04	28.79	28.05	29.44
Hams, skinned, 14–17 lb.	69.39	87.70	81.80	83.17	85.00	87.25	81.00	84.00	—	—
All fresh beef retail price 4/	238.97	254.99	262.12	261.57	258.23	259.12	261.46	261.66	257.55	257.08
Commercial slaughter (1,000 head)*										
Cattle	33,917	33,242	32,687	2,471	2,703	2,933	2,579	2,562	2,827	2,439
Steers	16,539	16,587	16,732	1,220	1,386	1,465	1,264	1,299	1,450	1,255
Heifers	10,406	10,090	9,719	743	852	882	736	700	877	690
Cows	6,316	5,920	5,623	461	414	525	531	519	551	449
Bulls & stags	657	644	614	47	51	61	48	44	49	45
Calves	2,172	1,789	1,442	125	119	131	128	134	131	113
Sheep & lambs	5,465	5,654	5,714	462	477	523	467	480	484	438
Hogs	68,891	85,135	88,163	6,637	7,359	8,498	7,941	7,928	8,343	7,330
Commercial production (mil. lb.)										
Beef	22,974	22,634	22,799	1,694	1,939	2,115	1,813	1,782	2,039	1,707
Veal	344	316	296	26	24	27	26	27	28	25
Lamb & mutton	341	357	359	30	29	32	29	31	31	28
Pork	15,759	15,299	15,948	1,204	1,315	1,534	1,456	1,444	1,524	1,329

	Annual			1990	1991				1992	
	1989	1990	1991	IV	I	II	III	IV	I	II
Cattle on feed (13 States)										
Number on feed (1,000 head) 1/	9,688	9,943	10,827	9,062	10,827	10,739	9,461	8,620	10,137	—
Placed on feed (1,000 head)	24,469	24,803	23,212	7,401	5,702	5,006	5,414	7,090	—	—
Marketings (1,000 head)	22,940	22,526	22,388	5,289	5,328	5,820	5,973	5,267	*5,443	—
Other disappearance (1,000 head)	1,274	1,393	1,514	347	482	464	282	306	—	—
Hogs & pigs (10 States) 5/										
Inventory (1,000 head) 1/	43,210	42,200	42,900	44,120	42,900	41,990	44,520	48,900	45,055	44,770
Breeding (1,000 head) 1/	5,335	5,275	5,257	5,300	5,257	5,450	5,720	5,875	5,580	5,575
Market (1,000 head) 1/	37,875	36,925	37,643	38,820	37,643	36,540	38,800	41,225	39,475	39,195
Farrowings (1,000 head)	9,203	8,960	9,479	2,238	2,129	2,586	2,441	2,348	2,289	*2,612
Pig crop (1,000 head)	71,807	70,589	75,035	17,459	16,770	20,632	19,278	18,551	18,475	—

1/ Beginning of period. 2/ Bushels of corn equal in value to 100 pounds live weight. 3/ Prior to 1984, 8–14 lb.; 1984 & 1985, 14–17 lb; beginning 1986, 14–18 lb. 4/ New series estimating the composite price of all beef grades & ground beef sold by retail stores. This new series is in addition to, but does not replace, the series for the retail price of Choice beef that appears in table 8. 5/ Quarters are Dec. of preceding year–Feb. (I), Mar.–May (II), June–Aug. (III), & Sept–Nov. (IV). *Classes estimated. May not add to NASS totals due to rounding. — = not available.

Information contact: Polly Cochran (202) 219–0787.

Crops & Products

Table 17.—Supply & Utilization[1,2]

	Area											
	Set aside 3/	Planted	Harvested	Yield	Production	Total supply 4/	Feed and residual	Other domestic use	Exports	Total use	Ending stocks	Farm price 5/
	Mil. acres			Bu./acre				Mil. bu.				$/bu.
Wheat												
1986/87	21.0	72.0	60.7	34.4	2,091	4,017	401	796	999	2,196	1,821	2.42
1987/88	23.9	65.8	55.9	37.7	2,108	3,945	280	806	1,598	2,684	1,261	2.57
1988/89	22.5	65.5	53.2	34.1	1,812	3,096	146	829	1,419	2,394	702	3.72
1989/90*	9.6	76.6	62.2	32.7	2,037	2,762	139	853	1,233	2,225	536	3.72
1990/91*	7.5	77.2	69.3	39.5	2,736	3,309	489	886	1,068	2,443	866	2.61
1991/92*	15.4	69.9	57.7	34.3	1,981	2,882	350	865	1,300	2,515	366	2.95–3.05
	Mil. acres			Lb./acre				Mil. cwt (rough equiv.)				$/cwt
Rice												
1986/87	1.46	2.38	2.35	5,651	133.4	213.3	—	6/ 77.7	84.2	161.9	51.4	3.75
1987/88	1.57	2.36	2.33	5,556	129.6	184.0	—	6/ 80.4	72.2	152.6	31.4	7.27
1988/89	1.09	2.93	2.90	5,514	159.9	195.1	—	6/ 82.5	85.9	168.4	26.7	6.83
1989/90*	1.16	2.73	2.69	5,749	154.5	185.6	—	6/ 82.1	77.2	159.3	26.3	7.35
1990/91*	1.04	2.90	2.82	5,529	156.1	187.2	—	6/ 91.7	70.9	162.6	24.6	6.70
1991/92*	0.66	2.86	2.75	5,617	154.6	185.0	—	6/ 94.8	80.0	154.8	30.2	7.40–7.60
	Mil. acres			Bu./acre				Mil. bu.				$/bu.
Corn												
1986/87	14.3	76.6	68.9	119.4	8,226	12,287	4,669	1,224	1,492	7,385	4,882	1.50
1987/88	23.1	66.2	59.5	119.8	7,131	12,016	4,798	1,243	1,716	7,757	4,259	1.94
1988/89	20.5	67.7	58.3	84.6	4,929	9,191	3,941	1,293	2,026	7,260	1,930	2.54
1989/90*	10.8	72.2	64.7	116.3	7,525	9,458	4,389	1,356	2,368	8,113	1,344	2.36
1990/91*	10.7	74.2	67.0	118.5	7,934	9,282	4,669	1,367	1,725	7,761	1,521	2.28
1991/92*	7.4	76.0	68.8	108.6	7,474	9,016	4,900	1,445	1,525	7,870	1,146	2.30–2.50
	Mil. acres			Bu./acre				Mil. bu.				$/bu.
Sorghum												
1986/87	2.9	15.3	13.9	67.7	939	1,490	536	12	198	746	743	1.37
1987/88	4.1	11.8	10.5	69.4	731	1,474	555	25	232	812	663	1.70
1988/89	3.9	10.3	9.0	63.8	577	1,239	466	22	312	800	440	2.27
1989/90*	3.3	12.8	11.1	65.4	615	1,055	518	15	303	835	220	2.10
1990/91*	3.3	10.5	9.1	63.1	573	793	405	14	232	651	143	2.12
1991/92*	2.3	11.0	9.8	59.0	579	722	375	15	220	610	112	2.20–2.40
	Mil. acres			Bu./acre				Mil. bu.				$/bu.
Barley												
1986/87	2.0	13.0	12.0	50.8	609	942	298	175	134	606	336	1.61
1987/88	2.9	10.9	10.0	52.4	521	869	253	174	121	548	321	1.81
1988/89	2.8	9.8	7.6	38.0	290	622	171	176	79	425	196	2.80
1989/90*	2.3	9.1	8.3	48.6	404	614	193	176	84	453	161	2.42
1990/91*	2.9	8.2	7.5	56.1	422	596	205	176	81	461	135	2.14
1991/92*	2.1	8.9	8.4	55.2	464	620	225	175	100	500	120	2.10–2.15
	Mil. acres			Bu./acre				Mil. bu.				$/bu.
Oats												
1986/87	0.5	14.7	6.8	56.3	385	601	385	83	1	468	133	1.21
1987/88	0.8	17.9	6.9	54.3	374	652	358	81	1	440	112	1.58
1988/89	0.3	13.9	5.5	39.3	218	393	194	100	1	294	98	2.61
1989/90*	0.4	12.1	6.9	54.3	374	538	266	115	1	381	157	1.49
1990/91*	0.2	10.4	5.9	60.1	358	578	286	120	1	407	171	1.14
1991/92*	0.5	8.6	4.8	50.6	243	479	245	125	1	371	108	1.15–1.20
	Mil. acres			Bu./acre				Mil. bu.				$/bu.
Soybeans												
1986/87	0	60.4	58.3	33.3	1,943	2,479	7/ 108	1,179	757	2,042	436	4.78
1987/88	0	58.2	57.2	33.9	1,938	2,375	7/ 97	1,174	802	2,073	302	5.88
1988/89	0	58.8	57.4	27.0	1,549	1,855	7/ 88	1,058	527	1,673	182	7.42
1989/90*	0	60.8	59.5	32.3	1,924	2,109	7/ 101	1,146	623	1,870	239	5.89
1990/91*	0	57.8	56.5	34.0	1,926	2,167	7/ 94	1,187	557	1,838	329	5.74
1991/92*	0	59.1	58.0	34.3	1,986	2,320	7/ 95	1,240	680	2,015	305	5.45–5.75
								Mil. lbs.				8/ Cts./lb.
Soybean oil												
1986/87	—	—	—	—	12,783	13,745	—	10,833	1,187	12,020	1,725	15.40
1987/88	—	—	—	—	12,974	14,895	—	10,930	1,873	12,803	2,092	22.67
1988/89	—	—	—	—	11,737	13,967	—	10,591	1,661	12,252	1,715	21.10
1989/90*	—	—	—	—	13,004	14,741	—	12,083	1,353	13,436	1,305	22.30
1990/91*	—	—	—	—	13,408	14,730	—	12,164	780	12,944	1,786	21.00
1991/92*	—	—	—	—	14,005	15,800	—	12,250	1,350	13,600	2,200	18.0–20.5
								1,000 tons				9/ $/ton
Soybean meal												
1986/87	—	—	—	—	27,758	27,970	—	20,387	7,343	27,730	240	163
1987/88	—	—	—	—	28,060	28,300	—	21,293	6,854	28,147	153	222
1988/89	—	—	—	—	24,943	25,100	—	19,488	5,445	24,927	173	233
1989/90*	—	—	—	—	27,719	27,900	—	22,263	5,319	27,582	318	174
1990/91*	—	—	—	—	28,325	28,668	—	22,912	5,469	28,381	285	170
1991/92*	—	—	—	—	29,360	29,650	—	23,000	6,350	29,350	300	165–180

See footnotes at end of table.

Table 17.—Supply & Utilization, continued

	Area												
	Set Aside 3/	Planted	Harvested	Yield	Production	Total supply 4/	Feed and residual	Other domestic use	Exports	Total use	Ending Stocks		Farm price 5/
	Mil. acres			Lb./acre	Mil. bales								
Cotton 10/													
1986/87	4.2	10.0	8.5	552	9.7	19.1	—	7.5	6.7	14.1	5.0		52.40
1987/88	4.0	10.4	10.0	706	14.8	19.8	—	7.6	6.6	14.2	5.6		64.30
1988/89	2.2	12.5	11.9	619	15.4	21.2	—	7.8	6.1	13.9	7.1		56.80
1989/90*	3.5	10.6	9.5	614	12.2	19.3	—	8.8	7.7	16.5	3.0		66.20
1990/91*	2.0	12.3	11.7	634	15.5	18.5	—	8.7	7.8	16.5	2.3		68.20
1991/92*	0.9	14.1	12.8	658	17.5	19.9	—	9.4	6.8	16.2	3.8	11/	63.20

*April 10, 1992 Supply & Demand Estimates. 1/ Marketing year beginning June 1 for wheat, barley, & oats, August 1 for cotton & rice, September 1 for soybeans, corn, & sorghum, October 1 for soymeal & soyoil. 2/ Conversion factors: Hectare (ha.) = 2.471 acres, 1 metric ton = 2204.622 pounds, 36.7437 bushels of wheat or soybeans, 39.3679 bushels of corn or sorghum, 45.9296 bushels of barley, 68.8944 bushels of oats, 22.046 cwt of rice, & 4.59 480-pound bales of cotton. 3/ Includes diversion, acreage reduction, 50-92, & 0-92 programs. 0/92 & 50/92 set-aside includes idled acreage & acreage planted to minor oilseeds. Data for 1991/92 are preliminary. 4/ Includes imports. 5/ Marketing-year weighted average price received by farmers. Does not include an allowance for loans outstanding & Government purchases. 6/ Residual included in domestic use. 7/ Includes seed. 8/ Simple average of crude soybean oil, Decatur. 9/ Simple average of 44 percent, Decatur. 10/ Upland & extra long staple Stocks estimates based on Census Bureau data, resulting in an unaccounted difference between supply & use estimates & changes in ending stocks. 11/ Weighted average for August-November; not a projection for the marketing year. — = not available or not applicable.

Information contact: Commodity Economics Division, Crops Branch (202) 219-0840.

Table 18.—Cash Prices, Selected U.S. Commodities

	Marketing year 1/				1991				1992	
	1987/88	1988/89	1989/90	1990/91	Feb	Oct	Nov	Dec	Jan	Feb
Wheat, No. 1 HRW, Kansas City ($/bu.) 2/	2.96	4.17	4.22	2.94	2.77	3.54	3.76	4.06	4.66	4.51
Wheat, DNS, Minneapolis ($/bu.) 3/	3.15	4.36	4.16	3.06	2.85	3.68	3.78	4.11	4.36	4.56
Rice, S.W. La. ($/cwt) 4/	19.25	14.85	15.55	15.25	15.45	16.60	17.10	17.30	17.30	17.30
Corn, no. 2 yellow, 30 day, Chicago ($/bu.)	2.14	2.68	2.54	2.40	2.44	2.50	2.46	2.50	2.59	2.67
Sorghum, no. 2 yellow, Kansas City ($/cwt)	3.40	4.17	4.21	4.08	4.21	4.30	4.27	4.35	4.44	4.62
Barley, feed, Duluth ($/bu.) 5/	1.78	2.32	2.20	2.13	2.15	2.18	2.23	2.18	2.20	2.28
Barley, malting, Minneapolis ($/bu.)	2.04	4.11	3.28	2.42	2.38	2.38	2.50	2.54	2.51	2.51
U.S. price, SLM, 1-1/16 in. (cts./lb.) 6/	63.1	67.7	69.8	74.8	77.7	58.3	54.7	53.9	51.5	50.8
Northern Europe prices index (cts./lb.) 7/	72.3	66.4	82.3	82.9	85.2	67.6	63.0	61.8	59.3	56.3
U.S. M 1-3/32 in. (cts./lb.) 8/	76.3	69.2	83.6	88.2	93.8	70.3	65.4	64.3	61.5	60.3
Soybeans, no. 1 yellow, 30 day, Chicago ($/bu.)	6.67	7.41	5.86	5.76	5.70	5.88	5.56	5.54	5.66	5.73
Soybean oil, crude, Decatur (cts./lb.)	22.70	21.10	22.30	20.46	21.66	19.57	18.78	21.55	18.77	18.88
Soybean meal, 44% protein, Decatur ($/ton)	221.90	233.50	173.75	169.78	163.50	183.00	178.00	170.70	172.70	174.30

1/ Beginning June 1 for wheat & barley; Aug. 1 for rice & cotton; Sept. 1 for corn, sorghum & soybeans; Oct. 1 for soymeal & oil. 2/ Ordinary protein. 3/ 14% protein. 4/ Long grain, milled basis. 5/ Beginning Mar. 1987 reporting point changed from Minneapolis to Duluth. 6/ Average spot market. 7/ Liverpool Cotlook (A) index; average of five lowest prices of 12 selected growths. 8/ Memphis territory growths.

Information contact: Joy Harwood (202) 219-0840.

Table 19.—Farm Programs, Price Supports, Participation & Payment Rates

	Target price	Basic loan rate	Findley or announced loan rate 1/	Payment rates: Total deficiency	Paid land diversion: Mandatory	Paid land diversion: Optional	Effective base acres 2/	Program 3/	Participation rate 4/
				$/bu.			Mil. acres	Percent of base	Percent of base
Wheat									
1986/87 5/	4.38	3.00	2.40	1.98	1.10	2.00	91.6	22.5/2.5/5–10	85
1987/88	4.38	2.85	2.28	1.81	—	—	87.6	27.5/0/0	88
1988/89	4.23	2.76	2.21	0.69	—	—	84.8	27.5/0/0	86
1989/90	4.10	2.56	2.06	0.32	—	—	82.3	10/0/0	78
1990/91 6/	4.00	2.44	1.95	1.28	—	—	80.5	7/ 5/0/0	83
1991/92	4.00	2.52	2.04	*1.35	—	—	79.3	15/0/0	85
1992/93	4.00	2.58	2.21	**0.65	—	—	—	5/0/0	—
				$/cwt					
Rice									
1986/87 5/	11.90	7.20	8/ 3.94	4.70	—	—	4.2	35/0/0	94
1987/88	11.66	6.84	8/ 5.79	4.82	—	—	4.2	35/0/0	96
1988/89	11.15	6.63	8/ 6.21	4.31	—	—	4.2	25/0/0	94
1989/90	10.80	6.50	8/ 5.71	3.56	—	—	4.2	25/0/0	94
1990/91 6/	10.71	6.50	8/ 5.08	4.21	—	—	4.2	20/0/0	95
1991/92	10.71	6.50	—	3.07	—	—	4.2	5/0/0	95
1992/93	10.71	6.50	—	**3.51	—	—	—	0/0/0	—
				$/bu.					
Corn									
1986/87 5/	3.03	2.40	1.92	1.11	0.73	—	81.7	17.5/2.5/0	88
1987/88	3.03	2.28	1.82	1.09	—	2.00	81.5	20/0/15	91
1988/89	2.93	2.21	1.77	0.36	—	1.75	82.9	20/0/10	87
1989/90	2.84	2.06	1.65	0.58	—	—	82.7	10/0/0	80
1990/91 6/	2.75	1.98	1.57	0.53	—	—	82.6	10/0/0	77
1991/92	2.75	1.89	1.82	*0.41	—	—	82.9	7.5/0/0	77
1992/93	2.75	2.01	1.72	**0.48	—	—	—	5/0/0	—
				$/bu.					
Sorghum									
1986/87 5/	2.88	2.28	1.82	1.06	0.65	—	19.0 9/	17.5/2.5/0	74
1987/88	2.88	2.17	1.74	1.14	—	1.90	17.4	20/0/15	85
1988/89	2.78	2.10	1.68	0.48	—	1.65	16.8	20/0/10	82
1989/90	2.70	1.96	1.57	0.66	—	—	16.2	10/0/0	71
1990/91 6/	2.61	1.86	1.49	0.56	—	—	15.4	10/0/0	70
1991/92	2.61	1.80	1.54	*0.37	—	—	13.5	7.5/0/0	77
1992/93	2.61	1.91	1.63	**0.46	—	—	—	5/0/0	—
				$/bu.					
Barley									
1986/87 5/	2.60	1.95	1.56	0.99	0.57	—	12.4 9/	17.5/2.5/0	72
1987/88	2.60	1.86	1.49	0.79	—	1.60	12.5	20/0/15	85
1988/89	2.51	1.80	1.44	0.00	—	1.40	12.4	20/0/10	79
1989/90	2.43	1.68	1.34	0.00	—	—	12.3	10/0/0	67
1990/91 6/	2.38	1.60	1.28	0.22	—	—	11.9	10/0/0	68
1991/92	2.38	1.54	1.32	*0.62	—	—	11.5	7.5/0/0	76
1992/93	2.38	1.64	1.40	**0.35	—	—	—	5/0/0	—
				$/bu.					
Oats									
1986/87 5/	1.60	1.23	0.99	0.39	0.38	—	9.2 9/	17.5/2.5/0	38
1987/88	1.60	1.17	0.94	0.20	—	0.80	8.4	20/0/15	45
1988/89	1.55	1.14	0.90	0.00	—	—	7.9	5/0/0	30
1989/90	1.50	1.06	0.85	0.00	—	—	7.6	5/0/0	18
1990/91 6/	1.45	1.01	0.81	0.33	—	—	7.5	5/0/0	09
1991/92	1.45	0.97	0.83	*0.35	—	—	7.3	0/0/0	38
1992/93	1.45	1.03	0.88	**0.15	—	—	—	0/0/0	—
				$/bu.					
Soybeans 10/									
1986/87 5/	—	—	4.77	—	—	—	—	—	—
1987/88	—	—	4.77	—	—	—	—	—	—
1988/89	—	—	4.77	—	—	—	—	—	—
1989/90	—	—	4.53	—	—	—	—	11/ 10/25	—
1990/91 6/	—	—	4.50	—	—	—	—	11/ 0/25	—
1991/92	—	—	5.02	—	—	—	—	11/ 0/25	—
1992/93	—	—	5.02	—	—	—	—	11/ 0/25	—
				Cts./lb.					
Upland cotton									
1986/87 5/	81.0	55.00	12/ 44.00	26.00	—	—	15.5	25/0/0	92
1987/88	79.4	52.25	13/ 60.00	17.3	—	—	14.5	25/0/0	93
1988/89	75.9	51.80	13/ 51.89	19.4	—	—	14.5	12.5/0/0	89
1989/90	73.4	50.00	13/ 65.05	13.1	—	—	14.6	25/0/0	89
1990/91 6/	72.9	50.27	13/ 53.00	7.3	—	—	14.4	12.5/0/0	86
1991/92 14/	72.9	50.77	13/ —	10.1	—	—	14.6	5/0/0	84
1992/93	72.9	52.35	13/ —	**15.0	—	—	—	10/0/0	—

1/ There are no Findley loan rates for rice or cotton. See footnotes 8/, 12/, & 13/. 2/ National effective crop acreage base as determined by ASCS. Net of CRP. 3/ Program requirements for participating producers (mandatory acreage reduction program/mandatory paid land diversion/optional paid land diversion). Acres idled must be devoted to a conserving use to receive program benefits. 4/ Percentage of effective base acres enrolled in acreage reduction programs. 5/ Payments & loans received in cash were reduced by 4.3 percent in 1988/87 due to Gramm-Rudman-Hollings. 6/ Payments & loans were reduced by 1.4 percent in 1990/91 due to Gramm-Rudman-Hollings. Budget Reconciliation Act reductions to deficiency payments rates were also in effect in that year. Data do not include these reductions. 7/ Under 1990 modified contracts, participating producers plant up to 105 percent of their wheat base acres. For every acre planted above 95 percent of base, the acreage used to compute deficiency payments was cut by 1 acre. 8/ A marketing loan has been in effect for rice since 1985/86. Loans may be repaid at the lower of: a) the loan rate or b) the adjusted world market price (announced weekly). However, loans cannot be repaid at less than a specified fraction of the loan rate. Data refer to annual average adjusted world prices. 9/ The sorghum, oats, & barley programs are the same as for corn except as indicated. 10/ There are no target prices, base acres, acreage reduction programs, or deficiency payment rates for soybeans. 11/ Nominal percentage of program crop base acres permitted to shift into soybeans without loss of base. 12/ A marketing loan has been in effect for cotton since 1986/87. The loan repayment rate was fixed at 80 percent of the loan rate in 1986/87 (Plan A). 13/ In 1987/88 & after, loans may be repaid at the lower of: a) the loan rate or b) the adjusted world market price (announced weekly; Plan B). Starting in 1991/92, loans cannot be repaid at less than 70 percent of the loan rate. Data refer to annual average adjusted world prices. 14/ A marketing certificate program was implemented on Aug. 1, 1991. — = not available.

* For wheat & feed grains, the 1991/92 rate is the regular (5–month) deficiency payment rate. For the winter wheat option, the 5–month rate is $1.25. For upland cotton & rice, the rate is the total payment rate. ** Estimated total deficiency payment rate. Minimum guaranteed payment rate for 0/92 (wheat & feed grains) & 50/92 (rice & upland cotton) programs.

Information contact: Joy Harwood (202) 219–0840.

Table 20.—Fruit

	1983	1984	1985	1986	1987	1988	1989	1990	1991 P
Citrus 1/									
Production (1,000 ton)	13,682	10,832	10,525	11,058	11,993	12,761	13,186	10,860	12,216
Per capita consumpt. (lbs.) 2/	29.5	24.0	22.6	26.0	25.8	26.4	25.4	22.4	—
Noncitrus 3/									
Production (1,000 tons)	14,168	14,301	14,191	13,874	16,011	15,893	16,365	15,655	15,504
Per capita consumpt. (lbs.) 2/	63.6	67.7	66.7	69.8	75.4	72.7	74.3	69.8	—

	1991							1992	
	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb
F.o.b. shipping point prices									
Apples ($/carton) 4/	14.00	14.00	14.00	19.20	14.00	14.00	14.00	13.73	21.13
Pears ($/box) 5/	18.90	—	—	13.00	13.00	13.00	13.00	12.50	21.25
Grower prices									
Oranges ($/box) 6/	21.35	19.48	20.81	21.97	11.09	5.19	6.31	5.93	6.90
Grapefruit ($/box) 6/	5.44	4.82	2.86	1.38	6.24	6.16	5.95	5.92	5.68
Stocks, ending									
Fresh apples (mil. lbs.)	385.8	163.0	17.7	2,723.6	5,133.7	4,481.5	3,703.6	2,952.9	2,314.0
Fresh pears (mil. lbs.)	—	12.8	137.5	456.3	420.8	335.4	217.2	181.5	152.7
Frozen fruits (mil. lbs.)	590.6	762.8	833.2	871.6	1,027.9	983.4	892.4	803.8	735.2
Frozen orange juice (mil. lbs.)	1,110.6	967.7	876.9	765.2	584.2	617.3	952.7	1,130.7	1,127.1

1/ 1991 indicated 1990/91 season. 2/ Fresh per capita consumption. 3/ Calendar year. 4/ Red delicious, Washington, extra fancy, carton tray pack, 125's. 5/ D'Anjou, Washington, standard box wrapped, U.S. no. 1, 135's. 6/ U.S. equivalent on-tree returns. P = preliminary. — = not available.

Information contact: Wynnice Napper (202) 219-0884.

Table 21.—Vegetables

	Calendar year									
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Production										
Total vegetables (1,000 cwt)	430,795	403,509	456,334	453,030	448,629	478,381	488,779	542,437	561,704	565,373
Fresh (1,000 cwt) 1/ 3/	193,451	185,782	201,817	203,549	203,165	220,539	228,397	239,261	239,104	230,301
Processed (tons) 2/ 3/	11,867,170	10,886,350	12,725,880	12,474,040	12,273,200	12,892,100	12,019,110	15,157,790	16,130,020	16,753,580
Mushrooms (1,000 lbs.) 4/	490,826	561,531	595,681	587,956	614,393	631,619	667,759	714,992	749,488	—
Potatoes (1,000 cwt)	355,131	333,726	362,039	406,609	361,743	389,320	356,438	370,444	402,110	418,229
Sweetpotatoes (1,000 cwt)	14,833	12,083	12,902	14,573	12,368	11,611	10,945	11,358	12,594	11,496
Dry edible beans (1,000 cwt)	26,563	15,520	21,070	22,298	22,990	26,031	19,263	23,729	32,379	32,963

	1991								1992	
	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb
Shipments										
Fresh (1,000 cwt) 5/	30,842	26,747	29,105	17,211	15,711	20,930	17,354	16,583	22,759	17,429
Potatoes (1,000 cwt)	16,695	10,395	10,720	8,796	9,541	13,069	12,277	11,386	14,747	12,213
Sweetpotatoes (1,000 cwt)	291	188	161	93	220	403	820	433	301	295

1/ Includes fresh production of asparagus, broccoli, carrots, cauliflower, celery, sweet corn, lettuce, honeydews, onions, & tomatoes. 2/ Includes processing production of snap beans, sweet corn, green peas, tomatoes, cucumbers (for pickles), asparagus, broccoli, carrots, & cauliflower. 3/ Asparagus & cucumber estimates were not available for 1982 & 1983. 4/ Fresh & processing agaricus mushrooms only. Excludes specialty varieties. Crop year July 1 – June 30. 5/ Includes snap beans, broccoli, cabbage, carrots, cauliflower, celery, sweet corn, cucumbers, eggplant, lettuce, onions, bell peppers, squash, tomatoes, cantaloupes, honeydews, & watermelons.

Information contacts: Gary Lucier or Cathy Greene (202) 219-0884.

Table 22.—Other Commodities

	Annual					1990		1991		
	1986	1987	1988	1989	1990	July-Sept	Oct-Dec	Jan-Mar	Apr-June	July-Sept
Sugar										
Production 1/	6,267	7,309	7,087	6,841	6,335	652	3,435	2,206	626	648
Deliveries 1/	7,786	8,167	8,188	8,340	8,661	2,322	2,311	2,019	2,103	2,340
Stocks, ending 1/	3,225	3,195	3,132	2,946	2,642	1,210	2,729	3,530	2,487	1,613
Coffee										
Composite green price N.Y. (cts./lb.)	185.18	109.14	119.59	95.17	76.93	79.10	76.85	74.94	72.13	68.18
Imports, green bean equiv. (mil. lbs.) 2/	2,596	2,638	2,072	2,630	2,714	530	616	748	563	562

	Annual			1990	1991					
	1988	1989	1990	Aug	Mar	Apr	May	June	July	Aug
Tobacco										
Prices at auctions 3/										
Flue-cured ($/lb.)	1.61	1.67	1.67	1.61	—	—	—	—	—	1.66
Burley ($/lb.)	1.61	1.67	1.75	—	—	—	—	—	—	—
Domestic consumption 4/										
Cigarettes (bil.)	562.5	540.1	523.1	49.9	47.1	40.1	49.3	45.8	44.0	42.3
Large cigars (mil.)	2,531	2,467.6	2,343.4	210.8	182.5	175.4	169.1	216.8	170.2	205.8

1/ 1,000 short tons, raw value. Quarterly data shown at end of each quarter. 2/ Net imports of green & processed coffee. 3/ Crop year July-June for flue-cured, Oct.-Sept. for burley. 4/ Taxable removals. — = not available.

Information contacts: sugar, Peter Buzzanell (202) 219-0888, coffee, Fred Gray (202) 219-0888, tobacco, Verner Grise (202) 219-0890.

World Agriculture

Table 23.—World Supply & Utilization of Major Crops, Livestock & Products

	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91 P	1991/92 F
				Million units			
Wheat							
Area (hectares)	230.2	228.2	219.9	217.9	226.4	231.7	222.7
Production (metric tons)	501.0	531.1	502.4	501.3	537.9	594.1	546.9
Exports (metric tons) 1/	84.8	91.2	106.1	97.2	96.2	92.9	106.9
Consumption (metric tons) 2/	496.6	522.9	531.6	531.7	534.9	573.8	561.3
Ending stocks (metric tons) 3/	169.7	177.7	148.5	118.0	121.0	141.3	126.9
Coarse grains							
Area (hectares)	342.0	337.1	324.7	326.0	322.9	315.8	323.8
Production (metric tons)	844.0	833.3	796.1	731.6	802.9	832.9	801.4
Exports (metric tons) 1/	83.2	83.7	82.9	94.2	100.0	85.8	87.8
Consumption (metric tons) 2/	779.7	807.5	816.6	795.9	829.6	820.0	810.4
Ending stocks (metric tons) 3/	208.2	234.0	213.6	149.3	123.7	136.5	127.5
Rice, milled							
Area (hectares)	145.0	145.4	141.9	145.8	146.6	146.9	146.1
Production (metric tons)	319.2	318.3	316.4	332.0	344.3	352.0	346.2
Exports (metric tons) 4/	12.6	12.9	11.9	15.1	12.1	12.3	13.5
Consumption (metric tons) 2/	319.7	322.3	321.8	329.7	337.7	347.6	352.2
Ending stocks (metric tons) 3/	55.4	51.4	46.0	48.3	55.0	59.4	55.4
Total grains							
Area (hectares)	717.2	710.7	686.5	689.7	696.1	694.4	692.6
Production (metric tons)	1,664.2	1,682.7	1,614.9	1,564.9	1,685.1	1,779.0	1,696.5
Exports (metric tons) 1/	180.6	187.8	200.9	206.5	208.3	191.0	208.2
Consumption (metric tons) 2/	1,596.1	1,652.7	1,670.0	1,657.3	1,701.2	1,741.4	1,723.9
Ending stocks (metric tons) 3/	433.1	463.1	408.1	315.6	299.7	337.2	309.6
Oilseeds							
Crush (metric tons)	155.1	161.8	168.5	166.4	173.2	178.8	184.2
Production (metric tons)	196.2	194.9	210.6	204.2	214.1	217.7	224.1
Exports (metric tons)	34.5	37.7	39.5	32.0	36.0	33.8	35.8
Ending stocks (metric tons)	26.8	23.3	24.0	22.2	23.2	23.3	23.7
Meals							
Production (metric tons)	105.0	110.7	115.4	112.2	117.9	121.0	124.2
Exports (metric tons)	34.4	36.7	35.8	37.9	39.1	39.8	40.4
Oils							
Production (metric tons)	49.4	50.4	53.3	53.9	57.6	58.9	60.5
Exports (metric tons)	16.4	16.9	17.5	18.3	20.0	20.2	20.3
Cotton							
Area (hectares)	31.7	29.5	31.0	33.7	31.6	33.0	34.3
Production (bales)	80.4	70.7	81.0	84.6	79.9	87.0	95.4
Exports (bales)	20.3	26.0	23.2	25.9	24.0	23.1	22.8
Consumption (bales)	76.9	82.8	84.1	85.2	86.6	85.6	85.8
Ending stocks (bales)	48.5	35.9	32.9	32.1	26.3	28.5	38.1

	1986	1987	1988	1989	1990	1991 P	1992 F
Red meat							
Production (metric tons)	109.8	112.8	116.5	117.9	120.0	119.1	119.9
Consumption (metric tons)	108.6	110.8	114.5	116.5	117.8	117.1	117.5
Exports (metric tons) 1/	6.6	6.7	7.1	7.2	7.3	7.7	7.7
Poultry 5/							
Production (metric tons)	30.2	31.4	33.1	34.3	36.2	37.7	39.3
Consumption (metric tons)	29.9	31.0	32.7	33.9	35.8	37.1	38.8
Exports (metric tons) 1/	1.3	1.5	1.7	1.8	2.1	2.2	2.3
Dairy							
Milk production (metric tons)	425.9	425.7	429.0	434.9	442.6	426.9	425.3

1/ Excludes intra-EC trade. 2/ Where stocks data not available (excluding USSR), consumption includes stock changes. 3/ Stocks data are based on differing marketing years & do not represent levels at a given date. Data not available for all countries; includes estimated change in USSR grain stocks but not absolute level. 4/ Calendar year data. 1986 data correspond with 1985/86, etc. 5/ Poultry excludes the Peoples Republic of China before 1986.
P = preliminary. F = forecast

Information contacts: Crops, Carol Whitton (202) 219-0824; red meat & poultry, Linda Bailey (202) 219-1285; dairy, Sara Short (202) 219-0770.

U.S. Agricultural Trade

Table 24.—Prices of Principal U.S. Agricultural Trade Products

	Annual			1991					1992	
	1989	1990	1991	Feb	Sept	Oct	Nov	Dec	Jan	Feb
Export commodities										
Wheat, f.o.b. vessel, Gulf ports ($/bu.)	4.65	3.72	3.52	3.13	3.63	4.00	4.09	4.40	4.65	4.83
Corn, f.o.b. vessel, Gulf ports ($/bu.)	2.85	2.79	2.75	2.74	2.77	2.79	2.74	2.73	2.79	2.91
Grain sorghum, f.o.b. vessel, Gulf ports ($/bu.)	2.70	2.65	2.69	2.72	2.71	2.74	2.70	2.76	2.86	2.98
Soybeans, f.o.b. vessel, Gulf ports ($/bu.)	7.06	6.24	6.05	6.08	6.26	5.99	5.97	5.91	6.00	6.06
Soybean oil, Decatur (cts./lb.)	20.21	22.75	20.14	21.48	20.02	19.06	18.52	18.67	18.61	18.65
Soybean meal, Decatur ($/ton)	216.59	189.37	172.90	184.01	192.23	181.83	178.38	171.38	172.43	173.86
Cotton, 8-market avg. spot (cts./lb.)	63.78	71.25	69.69	77.69	62.54	58.28	54.70	53.89	51.53	50.76
Tobacco, avg. price at auction (cts./lb.)	181.74	188.06	173.53	171.70	178.48	176.02	181.93	179.98	175.95	174.92
Rice, f.o.b. mill, Houston ($/cwt)	15.68	15.52	16.46	16.00	17.00	16.50	17.00	17.50	17.50	17.50
Inedible tallow, Chicago (cts./lb.)	14.71	13.54	13.26	12.91	13.50	13.68	13.21	12.50	0	0
Import commodities										
Coffee, N.Y. spot ($/lb.)	1.04	0.81	0.71	0.80	0.68	0.61	0.59	0.57	0.57	0.51
Rubber, N.Y. spot (cts./lb.)	50.65	46.28	45.73	48.92	44.45	44.54	44.75	44.15	43.11	43.95
Cocoa beans, N.Y. ($/lb.)	0.55	0.56	0.52	0.53	0.58	0.58	0.57	0.59	0.58	0.51

Information contact: Mary Teymourian (202) 219-0824.

Table 25.—Indexes of Real Trade-Weighted Dollar Exchange Rates 1/

	1991								1992		
	May	June	July	Aug	Sept	Oct P	Nov P	Dec P	Jan P	Feb P	Mar P
	1985 = 100										
Total U.S. trade 2/	67.1	69.3	69.1	68.2	66.6	66.0	63.9	62.4	62.3	63.6	62.8
Agricultural trade											
U.S. markets	79.7	80.8	80.5	79.9	78.5	78.2	77.0	76.0	75.3	75.9	76.2
U.S. competitors	77.5	77.9	77.9	76.9	75.8	77.0	76.4	76.2	76.5	76.8	76.7
Wheat											
U.S. markets	98.6	98.7	99.0	98.2	96.4	97.2	96.4	95.5	94.7	95.3	94.9
U.S. competitors	71.5	72.1	71.9	71.1	70.3	69.9	69.4	69.6	70.1	71.0	71.0
Soybeans											
U.S. markets	68.4	70.2	69.7	68.8	67.4	66.7	65.0	63.8	63.2	63.6	62.8
U.S. competitors	57.9	56.8	55.6	54.8	54.1	56.0	56.4	57.7	58.5	58.7	59.5
Corn											
U.S. markets	73.5	74.6	74.1	73.7	72.3	71.3	70.1	69.3	68.3	68.9	68.2
U.S. competitors	64.9	65.7	65.1	64.3	62.8	62.5	61.4	60.4	60.0	60.5	59.9
Cotton											
U.S. markets	74.9	75.8	75.6	75.2	74.1	73.6	72.7	72.2	71.7	72.4	72.0
U.S. competitors	89.8	89.4	88.8	88.4	86.8	86.8	86.9	86.1	85.1	84.3	83.8

1/ Real indexes adjust nominal exchange rates for differences in rates of inflation, to avoid the distortion caused by high-inflation countries. A higher value means the dollar has appreciated. See the October 1988 issue of Agricultural Outlook for a discussion of the calculations and the weights used. 2/ Federal Reserve Board index of trade-weighted value of the U.S. dollar against 10 major currencies. Weights are based on relative importance in world financial markets. P = preliminary.

Information contact: Tim Baxter, David Stallings (202) 219-0718.

Table 26.—Trade Balance

	Fiscal year 1/								Jan
	1985	1986	1987	1988	1989	1990	1991	1992 F	1992
	$ million								
Exports									
Agricultural	31,201	26,312	27,876	35,316	39,590	40,220	37,609	40,000	3,668
Nonagricultural	179,236	179,291	202,911	258,656	301,269	326,059	356,682	—	29,230
Total 2/	210,437	205,603	230,787	293,972	340,859	366,279	394,291	—	32,898
Imports									
Agricultural	19,740	20,884	20,650	21,014	21,476	22,560	22,588	22,000	2,051
Nonagricultural	313,722	342,846	367,374	409,138	441,075	458,101	483,720	—	37,112
Total 3/	332,462	363,730	388,024	430,152	462,551	480,661	486,308	—	39,163
Trade balance									
Agricultural	11,461	5,428	7,226	14,302	18,114	17,660	15,021	18,000	1,617
Nonagricultural	-134,486	-163,555	-164,463	-150,482	-139,806	-132,042	107,038	—	-7,882
Total	-123,025	-158,127	-157,237	-136,180	-121,692	-114,382	-92,017	—	-6,265

1/ Fiscal years begin October 1 & end September 30. Fiscal year 1991 began Oct. 1, 1990 & ended Sept. 30, 1991. 2/ Domestic exports including Department of Defense shipments (F.A.S. value). 3/ Imports for consumption (customs value). F = forecast. — = not available.

Information contact: Stephen MacDonald (202) 219-0822.

Table 27.—U.S. Agricultural Exports & Imports

	Fiscal year*			Jan	Fiscal year*			Jan
	1990	1991	1992 F	1992	1990	1991	1992 F	1992
	1,000 units				$ million			
EXPORTS								
Animals, live (no.) 1/	685	1,235	—	119	361	546	—	47
Meats & preps., excl. poultry (mt)	873	937	2/ 800	92	2,457	2,774	—	262
Dairy products (mt) 1/	105	43	—	7	358	293	600	35
Poultry meats (mt)	563	628	700	53	679	737	—	64
Fats, oils, & greases (mt)	1,265	1,169	1,200	130	459	419	—	45
Hides & skins incl. furskins	—	—	—	—	1,794	1,453	—	126
Cattle hides, whole (no.) 1/	23,920	21,608	—	1,921	1,412	1,193	—	106
Mink pelts (no.) 1/	5,128	3,941	—	425	116	74	—	5
Grains & feeds (mt)	112,925	100,016	—	8,678	15,698	12,206	3/ 13,300	1,153
Wheat (mt)	28,068	26,708	33,000	3,604	4,212	2,857	4/ 4,300	428
Wheat flour (mt)	851	1,076	900	50	198	202	—	10
Rice (mt)	2,491	2,401	2,100	114	830	749	700	43
Feed grains, incl. products (mt)	69,384	52,337	45,900	3,688	8,094	5,789	5,300	418
Feeds & fodders (mt)	11,153	16,389	5/ 11,500	1,095	1,828	1,914	—	190
Other grain products (mt)	978	1,105	—	127	536	695	—	64
Fruits, nuts, & preps. (mt)	2,972	2,949	—	260	2,788	3,038	—	242
Fruit juices incl. froz. (1,000 hectoliters) 1/	5,975	6,310	—	584	328	338	—	31
Vegetables & preps. (mt)	2,243	2,589	—	209	2,079	2,597	—	214
Tobacco, unmanufactured (mt)	218	239	200	22	1,359	1,533	1,500	125
Cotton, excl. linters (mt)	1,666	1,565	1,600	190	2,704	2,605	2,400	290
Seeds (mt)	556	514	—	84	573	618	600	97
Sugar, cane or beet (mt)	447	589	—	23	187	219	—	9
Oilseeds & products (mt)	23,745	21,976	—	2,896	6,099	5,607	6,600	709
Oilseeds (mt)	17,669	15,633	—	2,082	4,239	3,811	—	488
Soybeans (mt)	17,229	15,139	18,100	2,007	3,942	3,465	4,000	442
Protein meal (mt)	4,780	5,292	—	671	1,032	1,073	—	141
Vegetable oils (mt)	1,296	1,051	—	143	829	723	—	80
Essential oils (mt)	14	13	—	1	182	183	—	17
Other	91	92	—	9	2,115	2,441	—	205
Total	147,583	133,219	134,500	12,654	40,220	37,609	40,000	3,668
IMPORTS								
Animals, live (no.) 1/	2,938	3,168	—	213	1,053	1,131	1,100	97
Meats & preps., excl. poultry (mt)	1,142	1,191	—	103	2,848	3,016	—	242
Beef & veal (mt)	754	811	722	79	1,842	2,024	1,800	189
Pork (mt)	340	322	340	20	888	866	800	43
Dairy products (mt) 1/	255	231	—	13	951	807	800	48
Poultry & products 1/	—	—	—	—	129	119	—	12
Fats, oils, & greases (mt)	19	33	—	3	15	19	—	2
Hides & skins, incl. furskins 1/	—	—	—	—	182	153	—	16
Wool, unmanufactured (mt)	47	50	—	6	187	175	—	18
Grains & feeds (mt)	3,481	4,163	4,650	403	1,181	1,271	1,200	105
Fruits, nuts, & preps., excl. juices (mt)	5,331	5,648	5,580	571	2,486	2,740	—	276
Bananas & plantains (mt)	3,236	3,397	3,400	313	926	992	1,000	81
Fruit juices (1,000 hectoliters) 1/	33,933	27,948	32,000	2,343	1,002	737	—	81
Vegetables & preps. (mt)	2,243	2,180	—	257	2,264	2,185	2,100	212
Tobacco, unmanufactured (mt)	193	215	220	17	588	698	700	63
Cotton, unmanufactured (mt)	30	18	—	1	20	16	—	1
Seeds (mt)	171	169	170	16	164	173	200	17
Nursery stock & cut flowers 1/	—	—	—	—	519	538	—	49
Sugar, cane or beet (mt)	1,769	1,785	—	134	734	717	—	55
Oilseeds & products (mt)	2,016	2,077	—	185	964	959	1,000	83
Oilseeds (mt)	534	445	—	27	206	151	—	10
Protein meal (mt)	310	412	—	61	48	57	—	8
Vegetable oils (mt)	1,171	1,220	—	97	710	750	—	66
Beverages excl. fruit juices (1,000 hectoliters) 1/	13,543	12,987	—	826	1,867	1,858	—	112
Coffee, tea, cocoa, spices	2,202	2,025	2,055	245	3,465	3,280	—	372
Coffee, incl. products (mt)	1,290	1,116	1,150	139	1,997	1,831	1,800	204
Cocoa beans & products (mt)	698	680	690	84	1,042	1,005	1,000	128
Rubber & allied gums (mt)	840	792	790	79	712	664	700	63
Other	—	—	—	—	1,229	1,332	—	127
Total	—	—	—	—	22,560	22,588	22,000	2,051

*Fiscal years begin Oct. 1 & end Sept. 30. Fiscal year 1991 began Oct. 1, 1990 & ended Sept. 30, 1991. 1/ Not included in total volume and also other dairy products for 1989 & 1990. 2/ Forecasts for footnoted items 2/-6/ are based on slightly different groups of commodities. Fiscal 1990 exports of categories used in the 1991 forecasts were 2/ 676,000 m. tons. 3/ 16,014 million. 4/ 4,426 million i.e. includes flour. 5/ 11,065 million m. tons. 6/ Less than $500. F = forecast. — = not available.

Information contact: Stephen MacDonald (202) 219-0822.

Table 28.—U.S. Agricultural Exports by Region

Region & country	Fiscal year* 1990	1991	1992 F	Jan 1992	Change from year* earlier 1990	1991	1992 F	Jan 1992
	$ million				Percent			
WESTERN EUROPE	7,367	7,312	7,400	826	4	0	1	16
European Community (EC-12)	6,873	6,778	6,900	784	4	-1	1	18
Belgium-Luxembourg	426	464	—	37	-1	9	—	5
France	469	571	—	57	-1	22	—	7
Germany	1,154	1,135	—	94	17	-2	—	-6
Italy	702	675	—	104	15	-4	—	49
Netherlands	1,636	1,561	—	193	-11	-5	—	32
United Kingdom	760	883	—	74	3	16	—	4
Portugal	338	251	—	37	10	-26	—	17
Spain, incl. Canary Islands	976	855	—	132	15	-12	—	20
Other Western Europe	493	536	500	42	-3	9	0	-3
Switzerland	171	194	—	17	3	13	—	-3
EASTERN EUROPE	475	306	200	26	35	-43	-33	20
Poland	101	46	—	3	124	-54	—	-42
Yugoslavia	129	74	—	8	69	-43	—	402
Romania	210	82	—	11	239	-61	—	46
USSR	3,006	1,758	2,500	313	-9	-42	39	114
ASIA	18,174	16,094	17,200	1,488	-3	-11	7	6
West Asia (Mideast)	1,996	1,430	1,800	109	-12	-28	14	13
Turkey	260	224	—	9	9	-14	—	-14
Iraq	497	0	0	0	-37	-100	0	0
Israel, incl. Gaza & W. Bank	285	287	—	26	-14	1	—	11
Saudi Arabia	502	536	600	30	4	7	20	-6
South Asia	723	375	—	39	-38	-48	—	58
Bangladesh	120	67	—	1	-44	-44	—	-84
India	116	95	—	10	-52	-18	—	-37
Pakistan	391	144	200	28	-35	-63	-75	5,597
China	909	668	1,000	98	-39	-27	43	155
Japan	8,155	7,736	8,000	703	0	-5	4	6
Southeast Asia	1,184	1,239	—	141	21	5	—	-3
Indonesia	277	279	—	36	28	1	—	-13
Philippines	351	373	400	30	2	6	0	6
Other East Asia	5,206	4,646	4,800	398	13	-11	2	-8
Taiwan	1,819	1,739	1,800	146	14	-4	6	-10
Korea, Rep.	2,701	2,159	2,200	184	10	-20	0	-5
Hong Kong	685	745	800	68	19	9	14	-13
AFRICA	2,011	1,884	1,800	148	-12	-6	-5	-15
North Africa	1,527	1,388	1,300	120	-15	-9	-7	-14
Morocco	164	129	—	10	-24	-21	—	-31
Algeria	491	479	500	29	-11	-2	10	-38
Egypt	763	692	700	73	-20	-9	0	3
Sub-Sahara	484	496	500	28	0	2	0	-19
Nigeria	32	44	—	5	7	37	—	64
Rep. S. Africa	81	74	—	4	43	-9	—	-45
LATIN AMERICA & CARIBBEAN	5,155	5,500	5,700	479	-5	7	4	18
Brazil	105	271	200	6	-30	159	-33	-57
Caribbean Islands	1,008	1,010	—	79	0	0	—	2
Central America	463	497	—	38	3	7	—	42
Colombia	147	124	—	15	6	-16	—	0
Mexico	2,666	2,884	3,000	279	-3	8	3	27
Peru	187	150	—	19	132	-20	—	60
Venezuela	345	307	400	26	-41	-11	0	31
CANADA	3,715	4,409	4,700	366	70	19	7	8
OCEANIA	317	346	400	23	18	9	0	-18
TOTAL	40,220	37,609	40,000	3,868	2	-6	6	14
Developed countries	19,863	20,104	20,400	1,942	10	2	1	10
Less developed countries	15,966	14,769	15,800	1,289	-3	-7	7	3
Centrally planned countries	4,390	2,736	3,800	437	-15	-38	41	112

*Fiscal years begin Oct. 1 & end Sept. 30. Fiscal year 1991 began Oct. 1, 1990 & ended Sept. 30, 1991. F = forecast. — = not available.
Note: Adjusted for transshipments through Canada.

Information contact: Stephen MacDonald (202) 219-0822

Farm Income

Table 29.—Farm Income Statistics

	Calendar year										
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991 F	1992 F
	$ billion										
1. Farm receipts	147.8	141.9	147.7	150.1	140.2	148.3	157.3	166.6	175.8	174	163 to 170
Crops (incl. net CCC loans)	72.3	67.2	69.9	74.3	63.7	65.8	71.6	76.9	80.4	81	81 to 85
Livestock	70.3	69.6	72.9	69.8	71.8	76.0	79.4	84.1	89.6	86	82 to 85
Farm related 1/	5.2	5.1	4.9	6.0	5.7	6.6	6.3	6.1	6.7	7	6 to 8
2. Direct Government payments	3.5	9.3	8.4	7.7	11.8	16.7	14.5	10.9	9.3	8	7 to 10
Cash payments	3.5	4.1	4.0	7.6	6.1	5.6	7.1	9.1	8.4	8	7 to 10
Value of PIK commodities	0.0	5.2	4.5	0.1	3.7	10.1	7.4	1.7	0.9	0	0 to 1
3. Gross cash income (1+2) 2/	151.3	151.1	156.1	157.9	152.8	165.1	171.9	179.9	186.0	182	178 to 186
4. Nonmoney income 3/	14.3	13.8	5.9	5.6	5.5	5.6	6.1	6.1	6.3	6	5 to 7
5. Value of inventory change	-1.4	-10.9	6.0	-2.3	-2.2	-2.3	-3.5	4.3	2.9	0	0 to 5
6. Total gross farm income (3+4+5)	164.1	153.9	168.0	161.2	156.1	168.4	174.5	190.3	195.1	188	186 to 194
7. Cash expenses 4/	113.2	112.8	118.7	110.7	105.0	109.8	114.5	120.5	124.2	125	125 to 132
8. Total expenses	140.3	139.5	141.9	132.4	125.1	128.7	133.9	140.2	144.3	148	148 to 154
9. Net cash income (4-7)	38.1	38.4	37.4	47.1	47.8	55.3	57.4	59.4	61.8	57	49 to 55
10. Net farm income (3-8)	23.8	14.2	26.1	28.8	31.0	39.7	40.5	50.1	50.8	42	37 to 43
Deflated (1987$)	28.5	16.3	28.7	30.5	32.0	39.7	39.1	46.2	45.0	36	30 to 36
11. Off-farm income	36.4	37.0	39.2	55.2	54.5	56.3	57.2	57.3	67.0	60	59 to 62
12. Loan changes 5/: Real estate	3.0	1.4	3.5	-6.8	-9.8	-8.0	-4.8	-2.3	-1.9	-0	0 to 2
13. 5/: Non-real estate	3.4	0.9	-0.8	-9.6	-11.0	-4.6	-0.3	0.1	1.3	1	-1 to 1
14. Rental income plus monetary change	5.7	5.5	5.4	5.3	7.2	7.1	7.9	8.0	8.6	12	11 to 14
15. Capital expenditures 5/	13.3	12.7	12.5	9.2	8.5	11.2	11.3	12.6	13.4	13	11 to 14
16. Net cash flow (9+12+13+14-15)	37.0	33.4	36.9	30.1	26.9	38.7	49.0	52.6	56.4	56	50 to 55

1/ Income from machine hire, custom work, sales of forest products, & other miscellaneous cash sources. 2/ Numbers in parentheses indicate the combination of items required to calculate a given item. 3/ Value of home consumption of self-produced food & imputed gross rental value of farm dwellings. 4/ Excludes capital consumption, perquisites to hired labor, & farm household expenses. 5/ Excludes farm households. Total may not add because of rounding. F = forecast. — = not available.

Information contact: Robert McElroy (202) 219-0800.

Table 30.—Balance Sheet of the U.S. Farming Sector

	Calendar year 1/										
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991 F	1992 F
	$ billion										
Assets											
Real estate	750.0	753.4	661.7	586.1	542.2	578.6	599.4	605.1	614.4	624	625 to 635
Non-real estate	195.6	191.9	196.9	187.4	182.3	194.2	205.8	214.7	220.9	221	221 to 231
Livestock & poultry	53.0	49.5	49.5	46.3	47.8	58.0	62.2	66.2	69.1	66	68 to 72
Machinery & motor vehicles	86.0	85.8	85.0	82.9	81.5	80.0	82.0	85.8	87.4	89	88 to 92
Crops stored 2/	26.4	24.4	26.3	22.9	16.6	17.8	22.7	23.3	22.4	23	20 to 24
Purchased inputs	—	—	2.0	1.2	2.1	3.0	3.3	2.7	2.8	3	2 to 4
Financial assets	29.7	30.9	32.6	33.3	34.5	35.1	35.4	36.6	38.5	40	39 to 43
Total farm assets	945.1	944.0	857.1	772.6	724.6	772.5	805.1	819.7	834.6	845	850 to 860
Liabilities											
Real estate debt 3/	101.8	103.2	106.7	100.1	90.4	82.4	77.6	75.3	73.4	73	72 to 76
Non-real estate debt 4/	87.0	87.9	87.1	77.5	66.6	62.0	61.7	61.8	63.1	64	63 to 67
Total farm debt	188.8	191.1	193.8	177.6	157.0	144.4	139.4	137.1	136.5	137	136 to 142
Total farm equity	756.3	752.9	663.3	595.0	567.6	628.1	665.8	682.6	698.2	708	710 to 720
	Percent										
Selected ratios											
Debt-to-assets	20.0	20.2	22.6	23.0	21.7	18.7	17.3	16.7	16.3	16	16 to 17
Debt-to-equity	25.0	25.4	29.2	29.8	27.7	23.0	20.9	20.1	19.6	19	19 to 20
Debt-to-net cash income	496	498	518	377	328	261	243	231	221	235	240 to 260

1/ As of Dec. 31. 2/ Non-CCC crops held on farms plus value above loan rates for crops held under CCC. 3/ Excludes debt on operator dwellings, but includes CCC storage and drying facilities loans. 4/ Excludes debt for nonfarm purposes. F = forecast.

Information contacts: Ken Erickson or Jim Ryan (202) 219-0798.

Table 31.—Cash Receipts From Farm Marketings, by State

Region & State	Livestock & products				Crops 1/				Total 1/			
	1990	1991	Dec 1991	Jan 1992	1990	1991	Dec 1991	Jan 1992	1990	1991	Dec 1991	Jan 1992
						$ million 2/						
NORTH ATLANTIC												
Maine	220	215	21	21	240	203	17	18	460	418	37	40
New Hampshire	63	63	5	6	71	70	5	6	134	133	10	12
Vermont	398	365	33	34	49	51	3	3	447	416	36	38
Massachusetts	116	116	10	11	303	337	33	27	418	453	43	38
Rhode Island	13	13	1	1	58	58	8	3	71	71	9	4
Connecticut	196	193	25	18	250	253	15	56	446	446	40	73
New York	1,983	1,766	165	158	1,023	1,067	92	64	3,006	2,833	257	222
New Jersey	196	199	17	17	452	464	30	20	647	663	47	37
Pennsylvania	2,714	2,478	251	200	1,053	1,009	85	108	3,767	3,487	336	309
NORTH CENTRAL												
Ohio	1,836	1,662	199	123	2,335	2,285	171	199	4,172	3,946	370	322
Indiana	2,060	1,892	161	138	2,871	2,596	128	212	4,931	4,488	289	350
Illinois	2,477	2,288	202	150	5,461	5,198	347	708	7,938	7,486	550	859
Michigan	1,398	1,277	112	108	1,785	1,787	197	174	3,183	3,064	309	282
Wisconsin	4,581	4,162	394	360	1,125	1,175	106	128	5,706	5,337	500	488
Minnesota	3,758	3,485	302	279	3,253	3,386	271	318	7,011	6,871	574	597
Iowa	5,882	5,502	688	388	4,437	4,539	297	558	10,319	10,040	985	946
Missouri	2,271	2,155	234	144	1,668	1,673	122	183	3,939	3,828	356	327
North Dakota	813	803	72	102	1,724	1,919	213	190	2,537	2,722	285	291
South Dakota	2,313	2,239	188	197	1,036	1,089	65	84	3,349	3,327	254	281
Nebraska	6,037	5,950	444	473	2,808	2,951	248	407	8,845	8,901	692	880
Kansas	4,896	4,731	327	449	2,099	2,123	184	284	6,995	6,854	512	732
SOUTHERN												
Delaware	480	431	40	37	184	175	11	7	644	605	51	44
Maryland	828	785	66	70	517	509	33	28	1,345	1,295	99	99
Virginia	1,379	1,352	91	95	741	726	78	43	2,120	2,078	169	138
West Virginia	269	267	20	19	70	74	12	6	338	342	31	24
North Carolina	2,653	2,544	210	175	2,214	2,272	123	75	4,867	4,816	334	249
South Carolina	577	558	44	44	599	674	44	35	1,176	1,231	88	79
Georgia	2,268	2,064	186	156	1,574	1,828	132	71	3,842	3,892	318	227
Florida	1,260	1,200	129	96	4,448	4,836	472	495	5,708	6,036	601	592
Kentucky	1,698	1,632	115	110	1,400	1,480	517	336	3,098	3,112	632	446
Tennessee	1,111	1,051	88	83	928	970	205	101	2,039	2,021	293	184
Alabama	2,083	2,010	157	145	655	753	67	54	2,737	2,763	224	200
Mississippi	1,322	1,291	110	93	1,111	1,191	246	153	2,433	2,482	356	246
Arkansas	2,706	2,575	211	206	1,553	1,836	210	158	4,259	4,410	421	365
Louisiana	637	617	57	40	1,284	1,261	240	148	1,921	1,879	297	188
Oklahoma	2,363	2,382	156	174	1,191	1,049	96	105	3,554	3,431	252	279
Texas	7,712	7,693	543	678	4,268	4,496	486	364	11,981	12,189	1,030	1,042
WESTERN												
Montana	864	854	69	94	742	748	99	114	1,606	1,600	167	207
Idaho	1,154	1,099	80	103	1,781	1,566	172	134	2,935	2,665	252	237
Wyoming	610	616	37	38	157	162	26	12	767	777	63	50
Colorado	3,029	2,906	268	257	1,184	1,099	113	99	4,213	4,005	381	357
New Mexico	1,046	1,026	85	95	483	477	47	23	1,529	1,503	132	118
Arizona	819	823	108	65	1,046	1,206	151	123	1,865	2,029	259	188
Utah	576	555	52	46	179	167	14	14	755	722	66	60
Nevada	218	218	15	19	115	93	9	6	333	311	24	25
Washington	1,396	1,318	114	110	2,420	2,698	245	241	3,816	4,016	359	351
Oregon	755	751	57	66	1,557	1,546	112	93	2,312	2,297	168	160
California	5,515	5,474	636	434	13,344	13,370	1,053	628	18,859	18,843	1,688	1,062
Alaska	8	8	1	1	19	19	2	1	27	27	3	2
Hawaii	88	89	7	7	499	489	41	42	588	578	48	49
UNITED STATES	89,623	85,742	7,605	6,935	80,364	82,002	7,694	7,458	169,987	167,743	15,298	14,393

1/ Sales of farm products include receipts from commodities placed under nonrecourse CCC loans, plus additional gains realized on redemptions during the period. 2/ Estimates as of end of current month. Totals may not add because of rounding.

Information contact: Roger Strickland (202) 219-0806.

Table 32.—Cash Receipts From Farming

	Annual						1991					1992
	1986	1987	1988	1989	1990	1991	Jan	Sept	Oct	Nov	Dec	Jan
						$ million						
Farm marketings & CCC loans[1]	135,303	141,759	151,082	160,893	169,987	167,743	15,161	15,021	19,242	17,699	15,298	14,393
Livestock & products	71,553	75,994	79,437	84,131	89,623	85,742	7,409	7,316	8,102	7,438	7,605	6,935
Meat animals	39,081	44,478	46,492	46,857	51,677	50,325	4,582	4,374	5,052	4,285	4,328	4,001
Dairy products	17,724	17,727	17,841	19,396	20,199	18,321	1,457	1,508	1,617	1,586	1,810	1,665
Poultry & eggs	12,701	11,516	12,868	15,372	15,270	14,641	1,180	1,217	1,265	1,254	1,308	1,074
Other	2,048	2,274	2,436	2,507	2,477	2,455	190	217	168	313	163	196
Crops	63,749	65,764	71,645	76,761	80,364	82,002	7,752	7,696	11,140	10,461	7,694	7,458
Food grains	6,741	6,776	7,467	8,247	7,876	7,280	752	823	858	682	584	770
Feed crops	16,911	14,576	14,298	17,061	19,116	19,278	2,411	1,500	2,381	2,627	1,536	2,392
Cotton (lint & seed)	3,371	4,189	4,546	5,040	5,234	6,006	779	231	798	1,617	1,147	729
Tobacco	1,894	1,816	2,083	2,415	2,736	2,898	433	479	328	188	692	432
Oil-bearing crops	10,614	11,283	13,500	11,886	12,403	12,597	1,237	1,239	3,275	1,675	766	1,160
Vegetables & melons	8,865	9,902	9,787	11,461	11,533	11,799	745	1,268	1,204	552	467	785
Fruits & tree nuts	7,252	8,082	9,204	9,257	9,306	9,856	631	1,124	1,224	1,357	1,128	425
Other	9,101	10,161	10,760	11,415	12,160	12,308	762	1,031	1,071	1,762	1,373	766
Government payments	11,813	16,747	14,480	10,887	9,298	8,124	53	103	1,391	320	1,373	71
Total	147,116	158,506	165,562	171,780	179,285	175,867	15,214	15,115	20,633	18,219	16,671	14,464

[1]Sales of farm products include receipts from commodities placed under nonrecourse CCC loans, plus additional gains realized on redemptions during the period.

Information contact: Roger Strickland (202) 219-0806.

Table 33.—Farm Production Expenses

	Calendar year										
	1983	1984	1985	1986	1987	1988	1989	1990	1991 F	1992 F	
						$ million					
Feed purchased	20,573	19,383	16,949	17,472	17,463	20,393	21,002	20,727	20,000	18,000	to 22,000
Livestock purchased	8,818	9,487	9,184	9,758	11,842	12,764	13,138	14,737	14,000	12,000	to 15,000
Seed purchased	2,690	3,386	3,128	3,188	3,259	3,359	3,558	3,582	4,000	3,000	to 5,000
Farm-origin inputs	32,081	32,256	29,261	30,418	32,564	36,515	37,698	39,046	38,000	36,000	to 41,000
Fertilizer & lime	7,055	8,361	7,513	6,820	6,453	6,947	7,249	7,137	7,000	6,000	to 8,000
Fuels & oils	7,211	7,296	6,436	5,310	4,957	5,091	4,983	5,951	6,000	5,000	to 7,000
Electricity	1,982	2,060	1,878	1,795	2,156	2,278	1,990	1,944	2,000	1,000	to 3,000
Pesticides	3,870	4,688	4,334	4,324	4,512	4,577	5,437	5,727	6,000	5,000	to 7,000
Manufactured inputs	20,118	22,404	20,160	18,249	18,077	18,893	19,659	20,759	21,000	20,000	to 24,000
Short-term interest	10,615	10,396	8,735	7,367	6,767	6,797	6,910	6,805	7,000	6,000	to 9,000
Real estate interest 1/	10,815	10,733	9,878	9,131	8,187	7,885	7,781	7,667	7,000	6,000	to 8,000
Total interest charges	21,430	21,129	18,613	16,498	14,954	14,682	14,691	14,472	14,000	12,000	to 15,000
Repair & maintenance 1/ 2/	6,529	6,416	6,370	6,426	6,761	6,800	7,272	7,263	8,000	7,000	to 9,000
Contract & hired labor	8,938	9,427	10,008	9,484	9,975	10,441	11,110	12,543	14,000	12,000	to 16,000
Machine hire & custom work	2,213	2,566	2,354	2,099	2,105	2,350	2,674	2,634	3,000	2,000	to 4,000
Marketing, storage, & transportation	3,904	4,012	4,127	3,652	4,078	3,450	4,080	3,972	4,000	3,000	to 5,000
Misc. operating expenses 1/	10,961	10,331	10,010	9,759	11,327	11,404	12,448	12,236	11,000	10,000	to 14,000
Other operating expenses	32,545	32,751	32,868	31,420	34,246	34,445	37,582	38,669	41,000	41,000	to 46,000
Capital consumption 1/	23,758	20,847	19,299	17,786	16,740	17,076	17,553	17,545	18,000	16,000	to 20,000
Taxes 1/	4,485	4,337	4,542	4,612	4,853	4,848	5,127	5,623	6,000	5,000	to 7,000
Net rent to nonoperator landlord	5,211	8,150	7,690	8,099	7,304	7,445	7,911	8,177	8,000	7,000	to 9,000
Other overhead expenses	33,434	33,334	31,531	28,499	28,897	29,367	30,590	31,345	32,000	30,000	to 35,000
Total production expenses	139,608	141,873	132,433	125,084	128,737	133,902	140,219	144,291	146,000	146,000	to 154,000

1/ Includes operator dwellings. 2/ Beginning in 1982, miscellaneous operating expenses include other livestock purchases & dairy assessments. Totals may not add because of rounding. F = forecast.

Information contacts: Chris McGath (202) 219-0804, Robert McElroy (202) 219-0800.

Table 34.—CCC Net Outlays by Commodity & Function

	Fiscal year									
	1984	1985	1986	1987	1988	1989	1990	1991	1992 E	1993 E
	$ million									
COMMODITY/PROGRAM										
Feed grains										
Corn	-934	4,403	10,524	12,346	8,227	2,863	2,450	2,387	2,635	3,620
Grain sorghum	76	483	1,185	1,203	764	457	361	243	222	300
Barley	89	336	471	394	57	45	-93	71	185	135
Oats	5	2	26	17	-2	1	-5	12	40	28
Corn & oat products	6	7	5	7	7	8	8	9	10	4
Total feed grains	-758	5,211	12,211	13,967	9,053	3,384	2,721	2,722	3,092	4,087
Wheat	2,536	4,691	3,440	2,836	678	53	806	2,958	2,211	2,329
Rice	333	990	947	906	128	631	667	867	571	720
Upland cotton	244	1,553	2,142	1,786	666	1,461	-79	382	1,281	702
Tobacco	346	455	253	-346	-453	-367	-307	-143	-86	20
Dairy	1,502	2,085	2,337	1,166	1,295	679	505	839	330	341
Soybeans	-585	711	1,597	-476	-1,676	-88	5	40	-109	42
Peanuts	1	12	32	8	7	13	1	48	-16	-6
Sugar	10	184	214	-85	-246	-25	15	-20	-26	-27
Honey	90	81	89	73	100	42	47	19	11	6
Wool	132	109	123	152	1/ 5	93	104	172	178	185
Operating expense 3/	362	346	457	535	614	620	618	625	7	7
Interest expenditure	1,064	1,435	1,411	1,219	425	98	632	745	590	300
Export programs 4/	743	134	102	276	200	-102	-34	733	1,645	1,748
1988/89 Disaster/ livestock assistance	0	0	0	0	0	3,919	2/ 161	121	1,029	0
Other	1,295	-314	486	371	1,665	110	609	2	1,258	1,256
Total	7,315	17,683	25,841	22,408	12,461	10,523	6,471	10,110	11,966	11,710
FUNCTION										
Price-support loans (net)	-27	6,272	13,628	12,199	4,579	-926	-399	418	841	352
Direct payments 5/										
Deficiency	612	6,302	6,186	4,833	3,971	5,798	4,178	6,224	6,100	7,446
Diversion	1,504	1,525	84	382	8	-1	0	0	0	0
Dairy termination	0	0	489	587	260	168	189	96	13	0
Other	0	0	27	60	0	42	3	21	252	93
Disaster	1	0	0	0	6	4	0	0	0	0
Total direct payments	2,117	7,827	6,746	5,862	4,245	6,011	4,370	6,341	6,365	7,539
1988/89 crop disaster	0	0	0	0	0	3,386	2/ 5	6	996	0
Emergency livestock/ forage assistance	0	0	0	0	31	533	156	115	33	0
Purchases (net)	1,470	1,331	1,670	-479	-1,131	116	-48	646	344	468
Producer storage payments	268	329	485	832	658	174	185	1	26	24
Processing, storage, & transportation	639	657	1,013	1,659	1,113	859	317	394	205	138
Operating expense 3/	362	346	457	535	614	620	618	625	7	7
Interest expenditure	1,064	1,435	1,411	1,219	425	98	632	745	590	300
Export programs 4/	743	134	102	276	200	-102	-34	733	1,645	1,748
Other	679	-648	329	305	1,727	-46	669	86	1,114	1,134
Total	7,315	17,683	25,841	22,408	12,461	10,523	6,471	10,110	11,966	11,710

1/ Fiscal 1988 wool & mohair program outlays were $130,635,000 but include a one-time advance appropriation of $126,108,000, which was recorded as a wool program receipt by Treasury. 2/ Approximately $1.5 billion in benefits to farmers under the Disaster Assistance Act of 1989 were paid in generic certificates & were not recorded directly as disaster assistance outlays. 3/ Does not include CCC Transfers to General Sales Manager. 4/ Includes Export Guarantee Program, Direct Export Credit Program, CCC Transfers to the General Sales Manager, Market Promotion Program, starting in fiscal 1991 & starting in fiscal 1992 Export Guarantee Program - Credit Reform, Export Enhancement Program, & Dairy Export Incentive Program. 5/ Includes cash payments only. Excludes payment-in-kind in fiscal 83-85 & generic certificates in fiscal 86-93. E = Estimated in the fiscal 1993 President's Budget based on November, 1991 supply & demand estimates. Minus (-) indicates a net receipt (excess of repayments or other receipts over gross outlays of funds).

Information contact: Richard Pazdalski (202) 720-5148.

Food Expenditures

Table 35.—Food Expenditures Estimates

(See the April 1992 issue.)
Information contact: Alden Manchester (202) 219-0880.

Transportation

Table 36.—Rail Rates, Grain & Fruit-Vegetable Shipments

	Annual			1991					1992	
	1989	1990	1991	Feb	Sept	Oct	Nov	Dec	Jan	Feb
Rail freight rate index 1/ (Dec. 1984=100)										
All products	106.4	107.5	109.3	108.9	109.2	109.3	109.4	109.4	109.3 P	109.3 P
Farm products	108.4	110.4	111.4	111.6	110.7	111.2	110.9	110.9	111.1 P	111.1 P
Grain	108.7	110.1	111.2	110.0	110.8	111.6	111.2	111.2	111.3 P	111.3 P
Food products	103.9	105.4	108.1	107.7	108.2	108.3	108.3	108.3	108.6 P	108.6 P
Grain shipments										
Rail carloadings (1,000 cars) 2/	28.4	27.6	26.4	28.6	27.4 P	30.1 P	27.3 P	28.8 P	29.0 P	30.1 P
Barge shipments (mil. ton) 3/	3.3	3.8	3.3	2.0	3.3	3.5	3.7	2.9	1.8	2.0
Fresh fruit & vegetable shipments 4/ 5/										
Piggy back (mil. cwt)	2.2	1.8	1.5	1.3	1.6	1.5	1.3	1.3	1.5	1.4
Rail (mil. cwt)	2.6	2.3	2.1	1.7	1.6	2.3	2.8	2.8	3.1	2.7
Truck (mil. cwt)	42.3	41.5	41.8	35.2	36.9	41.5	43.8	40.3	40.2	41.5
Cost of operating trucks hauling produce 4/										
Fleet operation (cts./mile)	123.4	130.5	126.5	130.5	122.6	123.7	124.9	124.0	122.6	122.7

1/ Department of Labor, Bureau of Labor Statistics. 2/ Weekly average; from Association of American Railroads. 3/ Shipments on Illinois & Mississippi waterways, U.S. Corps of Engineers. 4/ Agricultural Marketing Service, USDA. 5/ Preliminary data for 1991. P = preliminary.

Information contact: T.Q. Hutchinson (202) 219-0840.

Indicators of Farm Productivity

Table 37.—Indexes of Farm Production, Input Use & Productivity 1/

	1982	1983	1984	1985	1986	1987	1988	1989	1990 2/	1991 2/
						1977=100				
Farm output	116	96	112	118	111	110	102	114	119	120
All livestock products 3/	107	109	107	110	110	113	116	116	117	119
Meat animals	101	104	101	102	100	102	105	104	104	104
Dairy products	110	114	110	117	116	116	118	117	120	121
Poultry & eggs	119	120	123	128	133	144	148	153	162	168
All crops 4/	117	88	111	118	109	108	92	107	114	111
Feed grains	122	67	116	134	123	106	73	108	112	106
Hay & forage	109	100	107	106	106	102	89	101	101	103
Food grains	138	117	129	121	107	107	98	107	136	104
Sugar crops	96	93	95	97	106	111	105	105	107	112
Cotton	85	55	91	94	89	103	107	86	109	122
Tobacco	104	75	90	81	63	62	72	71	84	87
Oil crops	121	91	106	117	110	108	89	106	107	114
Cropland used for crops	101	88	99	98	94	88	87	90	90	—
Crop production per acre	116	100	112	120	116	123	106	119	127	—
Farm input 5/	98	96	95	91	89	89	87	87	88	—
Farm real estate	102	101	99	97	96	95	94	93	93	—
Mechanical power & machinery	89	86	85	80	77	74	74	73	71	—
Agricultural chemicals	118	102	120	115	109	111	112	119	122	—
Feed, seed, & livestock purchases	107	103	103	102	109	116	111	113	113	—
Farm output per unit of input	119	100	118	129	124	124	116	130	135	—
Output per hour of labor										
Farm 6/	125	99	121	139	139	142	135	147	142	—
Nonfarm 7/	99	102	105	106	108	109	111	112	111	—

1/ For historical data & indexes, see Economic Indicators of the Farm Sector: Production & Efficiency Statistics, 1986, ECIFS 5-6. 2/ Preliminary indexes for 1990 based on Crop Production: 1990 Summary, released in January 1991, & unpublished data from the Agricultural Statistics Board, NASS. 3/ Gross livestock production includes minor livestock products not included in the separate groups shown. It cannot be added to gross crop production to compute farm output. 4/ Gross crop production includes some miscellaneous crops not in the separate groups shown. It cannot be added to gross livestock production to compute farm output. 5/ Includes other items not included in the separate groups shown. 6/ Economic Research Service. 7/ Bureau of Labor Statistics. — = not available.

Information contact: George Douvelis (202) 219-0432.

Food Supply & Use

Table 38.—Per Capita Consumption of Major Food Commodities 1/

Commodity	1983	1984	1985	1986	1987	1988	1989	1990 2/
				Pounds				
Red meats 3/4/5/	123.9	123.7	124.9	122.2	117.4	119.5	115.9	112.4
Beef	74.1	73.8	74.6	74.4	69.5	68.6	65.4	63.9
Veal	1.4	1.5	1.5	1.6	1.3	1.1	1.0	0.9
Lamb & mutton	1.1	1.1	1.1	1.0	1.0	1.0	1.1	1.1
Pork	47.4	47.2	47.7	45.2	45.6	48.8	48.4	46.4
Poultry 3/4/5/	45.8	47.2	49.3	51.3	55.5	57.4	60.8	63.9
Chicken	37.0	38.2	39.8	40.7	43.4	44.7	47.3	49.4
Turkey	8.9	9.0	9.6	10.6	12.1	12.6	13.6	14.5
Fish & shellfish 4/	13.3	14.1	15.0	15.4	16.1	15.1	15.6	15.5
Eggs 5/	33.0	33.0	32.4	32.2	32.2	31.2	29.9	29.6
Dairy products								
Cheese (excluding cottage) 3/6/	20.6	21.5	22.5	23.1	24.1	23.7	23.8	24.7
American	11.6	11.9	12.2	12.1	12.4	11.5	11.0	11.1
Italian	5.3	5.8	6.5	7.0	7.6	8.1	8.5	9.1
Other cheese 7/	3.7	3.9	3.9	4.0	4.1	4.1	4.3	4.4
Cottage cheese	4.1	4.1	4.1	4.1	3.9	3.9	3.6	3.4
Beverage milks 3/	226.4	227.2	229.7	228.6	226.5	222.3	224.3	221.6
Fluid whole milk 8/	130.3	126.8	123.3	116.5	111.9	105.7	97.6	90.3
Fluid lowfat milk 9/	85.6	88.8	93.7	98.6	100.6	100.5	106.5	108.3
Fluid skim milk	10.6	11.6	12.6	13.5	14.0	16.1	20.2	22.9
Fluid cream products 10/	5.7	6.2	6.7	7.0	7.1	7.1	7.3	7.1
Yogurt (excluding frozen)	3.3	3.7	4.1	4.4	4.4	4.7	4.3	4.1
Ice cream	18.1	18.2	18.1	18.4	18.3	17.3	16.1	15.7
Ice milk	6.9	7.0	6.9	7.2	7.4	8.0	8.4	7.7
Frozen yogurt	—	—	—	—	—	—	2.0	2.8
All dairy products, milk equivalent, milkfat basis 11/	572.9	581.9	593.7	591.5	601.3	583.2	565.3	570.7
Fats & oils — Total fat content	60.0	58.8	64.3	64.3	62.9	63.0	61.1	62.7
Butter & margarine (product weight)	15.3	15.3	15.7	16.0	15.2	14.8	14.6	15.3
Shortening	18.5	21.3	22.9	22.1	21.4	21.5	21.5	22.2
Lard & edible tallow (direct use)	4.2	3.6	3.7	3.5	2.7	2.6	2.7	3.0
Salad & cooking oils	23.6	19.9	23.5	24.2	25.4	25.8	24.0	24.2
Fresh fruits 12/	93.2	91.7	89.3	95.9	101.1	99.2	99.2	92.3
Canned fruit 13/	12.8	12.3	12.7	12.9	13.6	13.3	13.4	13.4
Dried fruit	2.5	2.5	2.6	2.7	2.6	2.9	3.2	3.2
Frozen fruit	2.9	3.0	3.3	3.6	3.9	3.8	4.6	4.3
Frozen citrus juices 14/	41.7	35.7	40.5	43.2	40.2	40.1	34.3	27.2
Vegetables 12/								
Fresh	92.6	100.3	100.2	99.3	105.7	109.6	112.9	111.0
Canning	85.2	90.9	87.8	87.9	87.8	83.5	90.7	93.3
Freezing	14.6	17.5	17.1	15.8	16.8	18.3	17.8	18.1
Potatoes, all 12/	118.4	121.9	122.4	125.7	125.7	122.2	126.7	127.2
Sweetpotatoes 12/	4.6	4.9	5.4	4.4	4.4	4.1	4.1	4.7
Peanuts (shelled)	5.9	6.0	6.3	6.4	6.4	6.9	7.0	6.0
Tree nuts (shelled)	2.3	2.4	2.4	2.3	2.2	2.3	2.3	2.5
Flour & cereal products 15/	149.0	150.6	158.0	163.9	173.4	172.9	175.0	165.4
Wheat flour	117.7	119.2	124.7	125.7	129.9	130.0	129.2	137.9
Rice (milled basis)	9.9	8.5	9.0	11.6	14.0	14.3	15.2	16.1
Caloric sweeteners 16/	124.3	127.0	130.0	129.1	132.6	133.2	134.3	137.5
Coffee (green bean equiv.)	10.1	10.2	10.5	10.5	10.2	9.6	10.3	10.2
Cocoa (chocolate liquor equiv.)	3.2	3.4	3.7	3.6	3.9	3.8	3.9	4.2

1/ In pounds, retail weight unless otherwise stated. Consumption normally represents total supply minus exports, nonfood use, & ending stocks. Calendar-year data except fresh citrus fruits, peanuts, tree nuts, & rice, which are on crop-year basis. 2/ Preliminary. 3/ Total may not add due to rounding. 4/ Boneless, trimmed weight. 5/ Excludes shipments to the U.S. territories. 6/ Natural equivalent of cheese & cheese products. Total product weight is greater than natural equivalent because processed cheese & cheese food are made from natural cheese & other dairy products. Includes miscellaneous cheese not shown separately. 7/ Includes Swiss, Brick, Munster, cream, Neufchatel, Blue, Gorgonzola, Edam, & Gouda. 8/ Plain & flavored. 9/ Plain & flavored & buttermilk. 10/ Heavy cream, light cream, half & half, & sour cream & dip. 11/ Includes condensed & evaporated milk & dry milk products. 12/ Farm weight. 13/ Excludes pineapple & berries. 14/ Single strength equivalent. 15/ Includes rye, corn, oat, & barley products. Excludes quantities used in alcoholic beverages, corn sweeteners, & fuel. 16/ Dry weight equivalent. — = Not available.

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